Notice of Completion

App(F

Mail to: State Clearinghouse, P.O. Box 3044
Sacramento CA 95812-3044 (916) 445-0613

SCH # 2003081131

Project Title: - In situ lactate enhancement at Site 40 Concrete Pit/ Gravel Area Naval Weapons Station Seal Beach
Lead Agency: DTSC: 5796 Corporate Ave, Cypress, CA 90630
Contact: Sheila Lowe (714) 484-5430

Project Location

County: Orange City/Nearest Community: Seal Beach

Cross Streets: Westminister&Seal Beach Blvd. Total Acres: 6
Assessor's Parcel No Section: Twp : Range:
within 2 miles: State Hwy #: 405 Waterways:
Airports: Railways:

Document Type

CEQA: __ NOP __ Supplement/Subsequent NEPA: __ NOI Other: __ Joint Document
__ Early Cons __ EIR (Prior SCH No.) __ EA __ Final Document
X Neg Dec __ Other __ Draft EIS __ Other
__ Draft EIR __ FOSI

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AUG 25 2003
STATE CLEARING HOUSE

Local Action Type

__ General Plan Update __ Specific Plan __ Rezone __ Annexation
__ General Plan Amendment __ Master Plan __ Prezone __ Redevelopment
__ General Plan Element __ Planned Unit Development __ Use Permit __ Coastal Permit
__ Community Plan __ Site Plan __ Land Division (subdivision, Parcel Map Tract Map etc.) __ Other: __ Hazardous Waste Removal Action

Development Type

__ Residential: Units: ___ Acres: ___ __ Water Facilities: Type ___ MGD ___
__ Office: Sq ft: ___ Acres: ___ Employees: __ __ Transportation: Type ___
__ Commercial: Sq ft: ___ Acres: ___ Employees: __ __ Mining: Mineral ___
__ Industrial: Sq ft: ___ Acres: ___ Employees: __ __ Power: Type ___ Watts ___
__ Educational: ___ Waste Treatment: Type ___
__ Recreational: ___ __ Hazardous Waste: Type __acids bases solvents etc.__
__ Other: ___

Project Issues Discussed in Document

X Aesthetic/Visual __ Flood Plain/Flooding __ Schools/Universities __ Water Quality
X Agricultural Land __ Forest Land/Fire Hazard __ Septic Systems X Water Supply/Groundwater
X Air Quality __ Geologic/Seismic __ Sewer Capacity __ Wetland/Riparian
X Noise __ Minerals X Wildlife X Archeological/Historical
__ Coastal Zone __ Solid Waste __ Growth Inducing X Population/Housing Balance
__ Drainage/Absorption __ Toxic/Hazardous X Landuse Soil Erosion/Compaction/Grading
__ Economic/ Jobs X Public Services/Facilities X Traffic/Circulation X Cumulative Effects
__ Fiscal X Recreation/Parks __ Vegetation __ Other: ___

Present Land Use/Zoning/General Plan Use: Site 40 Station's locomotive repair shop is classified as an Industrial Site Government Owned and Operated

Project Description: The proposed selected remedy to cleanup the groundwater plume at Site 40 consists of construction, operation, and maintenance of groundwater monitoring wells and injection wells; treatment of groundwater using sodium lactate injection to accelerate natural biodegradation of chlorinated VOCs

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CEQA TRACKING CENTER

State Clearinghouse Contact: (916) 445-0613

State Review Began: 8-25-2003

SCH COMPLIANCE 9-23-2003

Please note State Clearinghouse Number (SCH#) on all Comments

SCH#: 2003081131

Please forward late comments directly to the Lead Agency

AQMD/APCD 33

(Resources: 8/30)

Project Sent to the following State Agencies

X Resources
__ Boating & Waterways
X Coastal Comm
__ Colorado Rvr Bd
X Conservation
X Fish & Game # 5
__ Delta Protection Comm
__ Forestry & Fire Prot
X Historic Preservation
X Parks & Rec
__ Reclamation Board
__ Bay Cons & Dev Comm
X DWR
__ OES (Emergency Svcs)

Bus Transp Hous
__ Aeronautics
__ CHP
X Caltrans # 12
__ Trans Planning
__ Housing & Com Dev
__ Food & Agriculture
X Health Services

State/Consumer Svcs
__ General Services

Cal EPA
__ ARB – Airport Projects
__ ARB – Transportation Projects
__ ARB – Major Industrial Projects
__ Integrated Waste Mgmt Bd
X SWRCB: Clean Wtr Prog
X SWRCB: Wtr Quality
__ SWRCB: Wtr Rights
X Reg WQCB # 5
X Toxic Sub Ctrl-CTC

Yth/Adlt Corrections
__ Corrections

Independent Comm
__ Energy Commission
X NAHC
__ Public Utilities Comm
__ Santa Monica Mtns
X State Lands Comm
__ Tahoe Rgl Plan Agency

__ Other: ___

DRAFT NEGATIVE DECLARATION
Comprehensive Environmental Response, Compensation, and Liability Act

Proposed Plan/Draft Remedial Action Plan At Installation Restoration Site 40
Naval Weapons Station (NAVWPNSTA), Seal Beach, California

State Clearing House Number:

Project Proponent: Naval Weapons Station, Seal Beach (NAVWPNSTA)
Contact: Ms Pei-Fen Tamashiro
Phone Number: (562) 626-7897

Project Location: Seal Beach, Orange County

NAVWPNSTA Seal Beach is located at 800 Seal Beach Boulevard, Seal Beach, California, and consists of approximately 5,000 acres of land along the Pacific Ocean within the city of Seal Beach NAVWPNSTA Seal Beach is bordered on the southwest by Anaheim Bay, on the north by Interstate Highway 405 (San Diego Freeway), on the east by Bolsa Chica Road, on the west by Seal Beach Boulevard, and on the southeast by an Orange County Flood Control Channel. Installation Restoration (IR) Site 40 is located in the southwestern portion of the base. The site includes an active locomotive shop (Building 240) and an unpaved (gravel) area located to north of and adjacent to the building.

Project Description:

Originally commissioned in 1944, NAVWPNSTA Seal Beach is one of five weapons stations operated by Naval Sea Systems Command that provide fleet combatants with ready-for-use ordnance. NAVWPNSTA Seal Beach serves as a supply point for approximately two-thirds of the operating Navy and Marine Corps forces in the Pacific.

The Department of the Navy (DON) proposes, as the final selected remedy for IR Site 40, and as documented in the Proposed Plan/Draft Remedial Action Plan, enhanced in situ bioremediation, monitored natural attenuation (MNA), and institution controls to address the contaminated groundwater plume located at IR Site 40 Cleanup of groundwater is recommended at IR Site 40 because volatile organic compounds (VOC), principally from industrial solvents, were reported in groundwater at concentrations that could result in adverse effects to human health if this water were extracted from the ground and used for domestic purposes The cleanup of the site by *in situ* bioremediation ranked highest out of the five alternatives evaluated against the nine criteria set forth in the National Oil and Hazardous Substances Contingency Plan

In situ groundwater remediation addresses the risk posed by VOC contamination (the primary concern at IR Site 40) by degrading VOC to harmless byproducts, thus permanently destroying the contaminants and significantly reducing the toxicity, mobility, and volume of hazardous substances in groundwater. Enhanced bioremediation is an innovative technology where treatment of contaminated groundwater occurs in place below the ground surface Injection of the technologies involves pumping of a mixture of sodium lactate (a degradable and environmentally safe substance used in the food industry) and potable water into the contaminated groundwater at IR Site 40.

Similar to the pilot test study conducted at IR Site 40, sodium lactate or a comparable bioremediation substrate will be injected through wells into groundwater at locations containing the highest reported concentrations of tetrachloroethene (PCE) and trichloroethene (TCE). The injection is intended to promote degradation of these VOCs to harmless byproducts of carbon dioxide and water. It is anticipated that most of the VOCs will be degraded within the first year of operation. During the design phase, technology refinements such as bioaugmentation and cometabolic oxidation may be tested as methods for enhancing this remedy

Institutional controls are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land or resource use. Institutional controls, in the form of land-use restrictions, are necessary to protect the integrity of the groundwater injection and monitoring wells and associated piping and equipment, and prevent the use of the contaminated groundwater until cleanup goals are achieved at IR Site 40. Since NAVWPNSTA Seal Beach is an active military installation, the institutional controls will be implemented through the Base Master Plan.

Project Activities:

The selected remedy for groundwater includes:

- construction, operation, and maintenance of groundwater monitoring wells and injection wells;
- treatment of groundwater using sodium lactate (or comparable bioremediation substrate) injection to accelerate natural biodegradation of chlorinated VOCs;
- MNA until cleanup goals are achieved;
- performance monitoring throughout the remedial action;
- confirmatory groundwater sampling at the end of the remediation to confirm that VOC concentrations meet specified cleanup levels; and
- institutional controls to prevent use of contaminated groundwater, protect equipment, and allow access for sampling, installing new monitoring wells, and implementing any remedial measures needed in the future.

Institutional controls will remain in place until groundwater remediation is complete. Groundwater remediation will be considered complete when the concentration of chemicals of concern in all monitoring wells meets the cleanup goals for one year.

The project is anticipated to commence the end of 2005

Findings of Significant Effect and Environment:

The Department of Toxic Substances Control (DTSC) has prepared a Special Initial Study pursuant to the requirements of the California Environmental Quality Act (CEQA, Section 21000 et seq., California Public Resources Code) and implementing Guideline (Section 15000 et seq., Title 14, California Code of Regulations). Based upon this analysis, DTSC has determined that the proposed project will not have a significant effect upon the environment. A copy of the Special Initial Study is attached.

Mitigation Measures:

DTSC has determined that the project does not require any mitigation measures beyond those incorporated as part of the project description.

Signature_____
Katherine Leibel
Project Manager

Signature_____
John E. Scandura, Chief
Southern California Branch
Office of Military Facilities

CALIFORNIA ENVIRONMENTAL QUALITY ACT

DE MINIMIS IMPACT FINDING

Project Title: Naval Weapons Station (NAVWPNSTA) Seal Beach, Installation Restoration (IR) Site 40, In Situ Lactate Enhancement, Concrete Pit/Gravel Area

State Clearinghouse Number:

Contact Person: Katherine Liebel, Office of Military Failcities Phone # (714) 484-5446

Project Location (*Include County*):

NAVWPNSTA Seal Beach is located at 800 Seal Beach Boulevard, Seal Beach, California, and consists of approximately 5,000 acres of land along the Pacific Ocean within the city of Seal Beach. NAVWPNSTA Seal Beach is bordered on the southwest by Anaheim Bay, on the north by Interstate Highway 405 (San Diego Freeway), on the east by Bolsa Chica Road, on the west by Seal Beach Boulevard, and on the southeast by an Orange County Flood Control Channel (as shown on Figure 1) Site 40 is located in the southwestern portion of the base, approximately 0.6 mile west of the Seal Beach National Wildlife Refuge (NWR) The site includes an active locomotive shop (Building 240) and an unpaved (gravel) area located to north of and adjacent to the building (as shown on Figure 2).

Project Description:

The Department of the Navy (DON) is proposing, as the final selected remedy for IR Site 40, and as documented in the Proposed Plan/Draft Remedial Action Plan, enhanced in situ bioremediation, monitored natural attenuation (MNA), and institutional controls to address the contaminated groundwater plume located at IR Site 40. Cleanup of groundwater is recommended at IR Site 40 because volatile organic compounds (VOC), principally from industrial solvents, were reported in groundwater at concentrations that could result in adverse effects to human health if this water were extracted from the ground and used for domestic purposes. The cleanup of the site by in situ bioremediation ranked highest out of the five alternatives evaluated against the nine criteria set forth in the National Oil and Hazardous Substances Contingency Plan.

In situ groundwater remediation addresses the risk posed by VOC contamination (the primary concern at IR Site 40) by degrading the VOC to harmless byproducts, thus permanently destroying the contaminants and significantly reducing the toxicity, mobility, and volume of hazardous substances in groundwater. Enhanced bioremediation is an innovative technology where treatment of contaminated groundwater occurs in place below the ground surface. Injection of the technologies involves pumping of a mixture of sodium lactate (a degradable and environmentally safe substance used in the food industry) and potable water into the contaminated groundwater at IR Site 40.

Similar to the pilot test study conducted at IR Site 40, sodium lactate or a comparable bioremediation substrate will be injected through injection wells into groundwater at locations containing the highest reported concentrations of tetrachloroethene (PCE) and trichloroethene (TCE) to promote degradation of these VOCs to harmless byproducts of carbon dioxide and water. It is anticipated that most of the VOCs will be degraded within the first year of operation. During the design phase, technology refinements such as bioaugmentation and cometabolic oxidation may be tested as methods for enhancing this remedy.

Institutional controls are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land or resource use. Institutional controls, in the form of land-use restrictions, are necessary to protect the integrity of the groundwater injection and monitoring wells and associated piping and equipment, and prevent the use of the contaminated groundwater until cleanup goals are achieved at IR Site 40. Since NAVWPNSTA Seal Beach is an active station, institutional controls will be implemented through the Base Master Plan.

The selected remedy for groundwater includes:

- construction, operation, and maintenance of groundwater monitoring wells and injection wells;

- treatment of groundwater using sodium lactate (or comparable bioremediation substrate) injection to accelerate natural biodegradation of chlorinated VOCs;
- MNA until cleanup goals are achieved;
- performance monitoring throughout the remedial action;
- confirmatory groundwater sampling at the end of the remediation to confirm that VOC concentrations meet specified cleanup levels; and
- institutional controls to prevent use of contaminated groundwater, protect equipment, and allow access for sampling, installing new monitoring wells, and implementing any remedial measures needed in the future.

Institutional controls will remain in place until groundwater remediation is complete. Groundwater remediation will be considered complete when the concentration of chemicals of concern in all monitoring wells meets the cleanup goals for one year.

The project is anticipated to commence the end of 2005.

Initial Study Information:

DTSC conducted a Special Initial Study and determined that this project will not degrade any air resources which individually or cumulatively could result in a loss of biological diversity among plants and animals residing in the air. The Special Initial Study indicated that the project could not result in changes to riparian land, rivers, streams, watercourses and wetlands under state and federal jurisdiction nor could this project result in changes to any water resources which will individually or cumulatively result in loss of biological diversity among the plants and animals residing in that water.

The Special Initial Study revealed that there was no possibility of adverse effects on native and non-native plant life, nor to rare and unique plant life and ecological communities dependent on plant life. There also was no possibility of adverse effects to listed, threatened and endangered plants or animals nor to habitat in which listed, threatened and endangered plants and animals are believed to reside. The Special Initial Study found that there was no possibility of effects on species of plants or animals listed as protected or identified for special management in the Fish and Game Code, the Public Resources Code, the Water Code, or regulations adopted thereunder and there would be no effects on marine and terrestrial plant or animal species subject to the jurisdiction of the Department of Fish and Game and the ecological communities in which they reside.

Declaration of No Evidence of Potential Adverse Effects:

By Virtue of the fact of having conducted the Special Initial Study, DTSC declares that there is no possibility of any adverse effects to biological diversity among plants or animals. In addition, there is no possibility of adverse effects to native and non native plant life, to rare and unique plant life and ecological communities dependent on plant life and there is no possibility of adverse effects on species of animals or plants which are listed, threatened or endangered nor to the habitat on which these species are dependent.

DTSC declares that there is no possibility of adverse effects on species of plants or animals listed as protected or identified for special management in the Fish and Game Code, the Public Resources Code, the Water Code, or regulations adopted thereunder and there is no possibility of effects on marine and terrestrial plant or animal species subject to the jurisdiction of the Department of Fish and Game and the ecological communities in which they reside.

Declaration of Rebutment of Presumption:

The Department of Toxic Substances Control (DTSC) has prepared an Initial Study pursuant to the requirements of the California Environmental Quality Act (CEQA, Section 21000 et seq., California Public Resources Code) and implementing Guidelines (Section 15000 et seq., Title 14, California Code of Regulations). Based upon this analysis, DTSC has determined that the proposed project will not have a significant effect upon the environment.

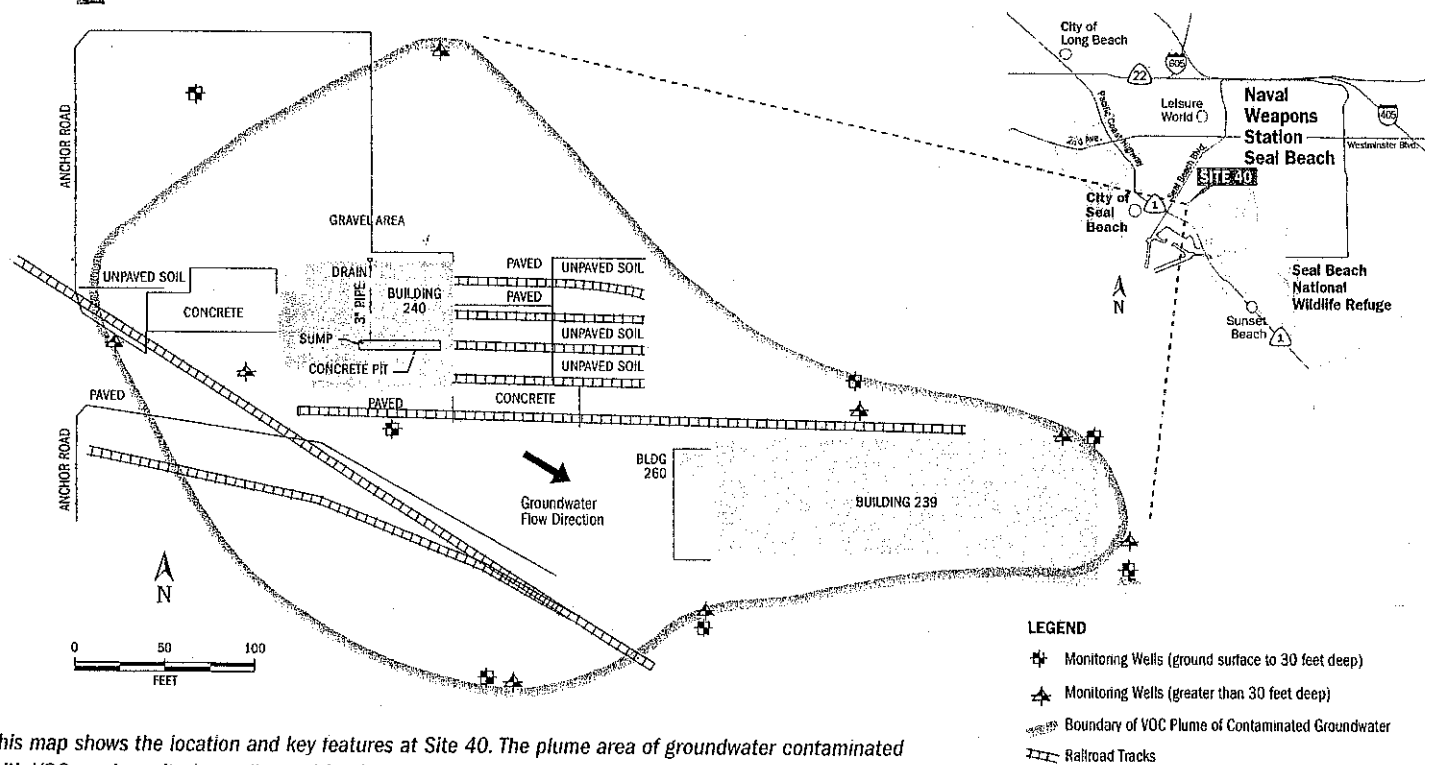
Mitigation Measures:

DTSC has determined that the project does not require any additional mitigation measures beyond those incorporated as part of the project description. DTSC has, on the basis of substantial evidence, rebutted the presumption of adverse effect as defined in Section 753.5(d), Title 14 of the California Code of Regulations.

Certification:
The Department of Toxic Substances Control (DTSC) certifies that it, as Lead Agency, has made the above findings of fact and that based upon the Initial Study and upon the record, that the project will not individually or cumulatively have an adverse effect on wildlife resources, as defined in Section 711.2 of the California Fish and Game Code.

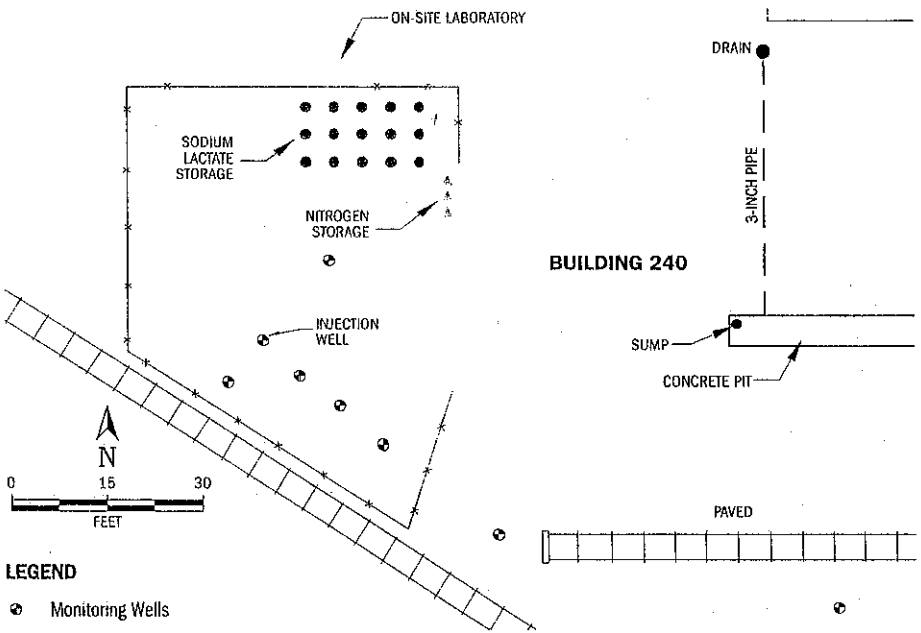
DTSC Branch/Unit Chief Signature		Date
John E. Scandura	Chief, Southern California Branch, OMF	(714) 484-5440
DTSC Branch/Unit Chief Name	DTSC Branch/Unit Chief Title	Phone #

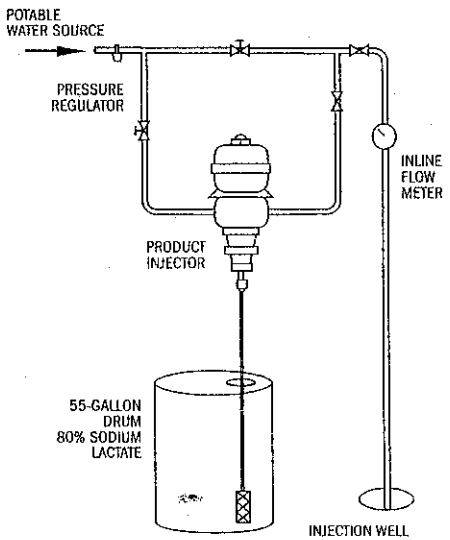
FIGURE 1: Site 40 Location



This map shows the location and key features at Site 40. The plume area of groundwater contaminated with VOCs and monitoring wells used for determining plume boundaries are presented.

FIGURE 2: Pilot Test Layout





Tap water from the hose valve at Building 240 was mixed with sodium lactate solution, then pumped into the injection well to the VOC plume beneath the site. The injector system was powered solely by the water pressure from the tap.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

SPECIAL INITIAL STUDY

The Department of Toxic Substances Control (DTSC) has completed the following Special Initial Study for this project in accordance with the California Environmental Quality Act (§ 21000 et seq., California Public Resources Code) and implementing Guidelines (§15000 et seq., Title 14, California Code of Regulations). This Special Initial Study has also been used to satisfy the requirements of 711.4, Fish and Game Code and 753.5, Title 14, Code of California Regulations relating to filing of environmental fees.

I. PROJECT INFORMATION

Project Name: In situ lactate enhancement at Installation Restoration (IR) Site 40, Concrete Pit/Gravel Area, Naval Weapons Station (NAVWPNSTA) Seal Beach, California.

NAVWPNSTA Seal Beach is located at 800 Seal Beach Boulevard, Seal Beach, California, and consists of approximately 5,000 acres of land along the Pacific Ocean within the city of Seal Beach. NAVWPNSTA Seal Beach is bordered on the southwest by Anaheim Bay, on the north by Interstate Highway 405 (San Diego Freeway), on the east by Bolsa Chica Road, on the west by Seal Beach Boulevard, and on the southeast by an Orange County Flood Control Channel (as shown on Figure 1). IR Site 40 is located in the southwestern portion of the base, approximately 0.6 mile west of the Seal Beach National Wildlife Refuge (NWR). The site includes an active locomotive shop (Building 240) and an unpaved (gravel) area located to north of and adjacent to the building (as shown on Figure 2 attached).

Site Address:

City: Seal Beach State: California Zip Code: 90740-5000 County: Orange

Contact Person: Pei-Fen Tamashiro
Naval Weapons Station Seal Beach

Address: 800 Seal Beach Boulevard

City: Seal Beach State: California Zip Code: 90740-5000 Phone Number: (562) 626-7897

Project Description:

The Department of the Navy (DON) is proposing, as the final selected remedy for IR Site 40, and as documented in the Proposed Plan/Draft Remedial Action Plan, enhanced in situ bioremediation, monitored natural attenuation (MNA), and institutional controls to address the contaminated groundwater plume located at IR Site 40. Cleanup of groundwater is recommended at IR Site 40 because volatile organic compounds (VOC), principally from industrial solvents, were reported in groundwater at concentrations that could result in adverse effects to human health if this water were extracted from the ground and used for domestic purposes. The cleanup of the site by in situ bioremediation ranked highest out of the five alternatives evaluated against the nine criteria set forth in the National Oil and Hazardous Substances Contingency Plan (NCP).

In situ groundwater remediation addresses the risk posed by VOC contamination (the primary concern at IR Site 40) by degrading VOC to harmless byproducts, thus permanently destroying the contaminants and significantly reducing the toxicity, mobility, and volume of hazardous substances in groundwater. Enhanced bioremediation is an innovative technology where treatment of contaminated groundwater occurs in place below the ground surface. Injection of the technologies involves pumping of a mixture of sodium lactate (a degradable and environmentally safe substance used in the food industry) and potable water into the contaminated groundwater at IR Site 40.

Similar to the pilot test study conducted at IR Site 40, sodium lactate or a comparable bioremediation substrate will be injected through injection wells into groundwater at locations containing the highest reported concentrations of

tetrachloroethene (PCE) and trichloroethene (TCE) to promote degradation of these VOC to harmless byproducts of carbon dioxide and water. It is anticipated that most of the VOC will be degraded within the first year of operation. During the design phase, technology refinements such as bioaugmentation and cometabolic oxidation may be tested as methods for enhancing this remedy

Institutional controls are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land or resource use. Institutional controls, in the form of land-use restrictions, are necessary to protect the integrity of the groundwater injection and monitoring wells and associated piping and equipment, and prevent the use of the contaminated groundwater until cleanup goals are achieved at IR Site 40. Since NAVWPNSTA Seal Beach is an active military installation, institutional controls will be implemented through the Base Master Plan.

Site History/Background:

NAWPNSTA, Seal Beach was originally commissioned in 1944 during World War II as a Naval Ammunition and Net Depot. The Station name has changed several times over the years, and was named Naval Weapons Station, Seal Beach in 1998. It is maintained by the Navy to provide fleet combatants with ready-for-use ordnance. The Station headquarter includes administrative support detachments, storage, testing, and production facitities to support its mission. The Navy uses its own locomotives and railcars to transport ordnance between storage facilities and Navy ships docked at the Station's wharf. At IR Site 40, from the mid-1940s to 1978, the concrete pit served as a collection point for oil and solvents spilled during locomotive maintenance activities. The waste oils and solvents were discharged from the pit to the gravel areas through a drain pipe until the pipe was plugged in 1978. A portion of the gravel area is paved with asphalt and the remaining portion is unpaved. Four railroad spurs terminate in Building 240 and provide locomotive access to the repair shop. Other tracks traverse the asphalt-paved area to the south. The waste solvents contaminated groundwater beneath the site.

In 1990, a preliminary assessment of several sites recommended further study of IR Site 40, among others. In 1996, a focused site inspection confirmed groundwater contamination in the plume beneath IR Site 40. In 1998, an extended removal site evaluation conducted at the site supplemented data collected from previous investigations and served as the remedial investigation. This process included soil and groudwater sampling and sufficient information to allow the Navy to define the nature and extent of soil and groundwater contamination and to evaluate the potential threat to human health and the environment. Information from this investigation also allowed the Navy to refine their understanding of the subsurface conditions and the migration pattern of chemicals in the groundwater. A screening health risk assessment was conducted to determine the potential exposure routes of chemicals to people and the environment and to estimate the potential risk from such exposures.

Commencing in 2000, groundwater monitoring has tracked the VOC plume at IR Site 40. Groundwater samples from monitoring wells in and around the plumes were anlayzed for VOC and natural attenuation parameters to determine if natural conditions and processes occurring in the groundwater are capable of reducing concentrations of contaminants. Groundwater monitoring has demonstrated the extent and chemistry of the plume as it changes over time and that natural attenuation is occurring and contributing to a reduction of VOC in the center of the plume. Groundwater in the shallow aquifer is not extracted or used as water source for domestic use (drinking as a water source) However, due to the water's exceedance of state and federal maximum contaminant levels, cleanup of the groundwater is required.

The investigations have shown that the potential for movement of VOC from the soil to groundwater is negligible. Results from soil sampling indicated that most of the original releases of the VOC to the soil have already migrated to the groundwater or have evaporated into the air. Metals identified in the soil at IR Site 40 were at background (naturally occurring) levels for soils found throughout NAVWPNSTA, Seal Beach. Consequently, soils have been ruled out as a health and environmental concern.

Installation Restoration (IR) Site 40 is one of 73 potentially contaminated or solid waste management units/areas of concern identified through the Station's environmental investigations. IR Site 40 comprises a concrete pit the locomotive shop known as building 240 and a gravel area located north of and adjacent to the building. During investigations, a plume contaminated with VOC, consisting primarily of PCE and TCE was identified in groundwater. The IR Site 40 VOC plume extends several hundred feet downgradient of the source areas and extends to approximately 66 feet below ground surface (bgs). Releases of chlorinated solvents migrated through the soil, resulting in a groundwater plume containing primarily PCE, along with lesser concentrations of TCE, cis-1,2-DCE (Dichloroethene), trans-1,2-DCE, and chloroform. The total mass of PCE in groundwater at IR Site 40 has been estimated to be approximately 6 12 pounds. Much of this is believed to be contained within the second water bearing zone (WBZ), although VOC have been reported in the first as

well as the third WBZ.

Although groundwater impacted by the plume at IR Site 40 does not serve as a source of water for any of the beneficial uses designated in the California Regional Water Quality Control Board's (RWQCB) Water Quality Control Plan, Santa Ana River Basin (Basin Plan) and does not pose an immediate threat to human health or the environment, the human health risk for groundwater exceeds the NCP-defined acceptable cancer risk and hazard index. These risk-based values warrant the need for cleanup action for groundwater. The human health screening risk assessment determined the cancer risk posed by groundwater to be 4.1 x 10-3 (four in 1,000 over a 30-year span), and the hazard index to be 85, indicating a potential for adverse health effects. These values indicate that the chemicals of potential concern related to past site activities do pose a potential adverse health effect if the groundwater is used for domestic purposes. The maximum reported concentrations, in micrograms per liter, for VOC in groundwater at IR Site 40 are listed in Section 8., Hyddrology and Water Quality, along with the California Maximum Contaminant Levels and the project goals. A concentration of 5 micrograms per liter for both TCE and PCE is the project goal

The Department of the Navy is the lead federal agency for environmental cleanup at NWPSTA, Seal Beach, and will be conducting work under the protocols of the United States Environmental Protection Agency (U.S. EPA) for facilities subject to the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations section 300 415 (40 C F.R.). The proposed project is also subject to the requirements of the California Health and Safety Code, Chapter 6.8.

Project Activities:

The selected remedy for groundwater includes:

- Construction, operation, and maintenance of groundwater monitoring wells and injection wells;
- Treatment of groundwater using sodium lactate (or comparable bioremediation substrate) injection to accelerate natural biodegradation of chlorinated VOC;
- MNA until cleanup goals are achieved;
- Performance monitoring throughout the remedial action;
- Confirmatory groundwater sampling at the end of the remediation to confirm that VOC concentrations meet specified cleanup levels; and
- Institutional controls to prevent use of contaminated groundwater, protect equipment, and allow access for sampling, installing new monitoring wells, and implementing any remedial measures needed in the future

Proposed institutional controls, in the form of land-use restrictions on property overlying the IR Site 40 groundwater plume, are:

- No new groundwater extraction, injection, or drinking water wells shall be installed within the IR Site 40 groundwater plume or associated buffer zone (500 feet from the edge of the plume in all directions) without prior review and written approval from the DON and DTSC;

- Injection and monitoring wells and associated piping and equipment that are included in the remedial action shall not be altered, disturbed, or removed without the prior review and written approval from the DON and DTSC; and

- The DON, DTSC, and their authorized agents, employees, contractors, and subcontractors will have the right to enter upon the premises to conduct investigation, test, or surveys; inspect field activities or construct, operate and maintain the remedial action or undertake any other remedial response or remedial action as required or necessary under the cleanup program, including but not limited to monitoring wells, pumping wells, and treatment facilities. Institutional controls will remain in place until groundwater remediation is complete. Groundwater remediation will be considered complete when the concentration of chemicals of concern (COCs) in all monitoring wells meets the cleanup goals for one year. The project is anticipated to commence the end of 2005.

Agencies Having Jurisdiction Over the project/ Types of Permits Required:

The Navy will oversee the proposed remedy at Site 40 the California Environmental Protection Agency (CAL/EPA) Department of Toxic Substances Control (DTSC) as a lead agency provides regulatory oversight for the selected remedy The Regional Water Quality Control Board provides technical oversight of IR Site 40 activities with water quality concerns.

II. DISCRETIONARY APPROVAL ACTION BEING CONSIDERED BY DTSC

☐ Initial Permit Issuance ☐ Closure Plan ☐ Removal Action Workplan

☐ Permit Renewal ☐ Regulations ☐ Interim Removal

☐ Permit Modification ☐ Removal Action Plan ☒ Other (Specify)
Draft Remedial Action Workplan

Program/ Region Approving Project: The Navy will oversee the proposed remedy at Site 40. the California Environmental Protection Agency (CAL/EPA) Department of Toxic Substances Control (DTSC) as a lead agency provides regulatory oversight for the selected remedy.

Contact Person: Ms. Katherine Leibel
Office of Military Facilities
Department of Toxic Substances Control

Address: 5796 Corporate Avenue

City: Cypress State: California Zip Code: 90630 Phone Number: (714) 484-5446

III. ENVIRONMENTAL RESOURCES POTENTIALLY AFFECTED

The boxes checked below identify environmental resources which were found in the following ENVIRONMENTAL SETTING/IMPACT ANALYSIS section to be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact."

☐ Non Identified ☐ Aesthetics ☐ Agricultural Resources

☐ Air Quality ☐ Hydrology and Water Quality ☐ Public Services

☐ Biological Resources ☐ Land Use and Planning ☐ Recreation

☐ Cultural Resources ☐ Mineral Resources ☐ Transportation and Traffic

☐ Geology and Soils ☒ Noise ☐ Utilities and Service Systems

☐ Hazards and Hazardous Materials ☐ Population and Housing ☐ Cumulative Effects

IV. ENVIRONMENTAL IMPACT ANALYSIS

The following pages provide a brief description of the physical environmental resources that exist within the area affected by the proposed project and an analysis of whether or not those resources will be potentially impacted by the proposed project. Preparation of this section follows guidance provided in DTSC's California Environmental Quality Act Initial Study Workbook [Workbook]. A list of references used to support the following discussion and analysis are contained in Attachment A and are referenced within each section below.

Mitigation measures which are made a part of the project (e.g.: permit condition) or which are required under a separate Mitigation Measure Monitoring or Reporting Plan which either avoid or reduce impacts to a level of insignificance are identified in the analysis within each section.

1. Aesthetics

Project activities likely to create an impact:

- Construction of new groundwater monitoring and injection wells
- Institutional controls, fencing, such as signs, site access limitations, and restrictions on new well installations.

Description of Environmental Setting:

An active locomotive shop (Building 240) is located on IR Site 40. Four railroad spurs terminate and provide access for locomotive repair in Building 240. Additional tracks traverse the asphalt-paved area to the south. The locomotive shop is equipped with three service bays for repair and maintenance activities. A concrete pit within the building floor provides access for repair and maintenance on the underside of the locomotives. This pit also serves as a collection point for oil and solvents spilled during maintenance activities. Oil that collected in the pit was formerly discharged through a drainpipe onto the gravel area outside Building 240 until the pipe was capped in 1978. At this time, the outlet of the drain pipe adjacent to the building is plugged with a standard threaded plastic pipe plug. Inside the concrete pit, the sump pump and associated piping has been removed and the inlet of the discharge line is plugged with a standard compression plug.

Analysis of Potential Impacts:

The installation and presence of the monitoring and injection wells required for the project are the only potential impacts to aesthetics posed by this project. The well casings used during the pilot-scale test were four inches in diameter PVC, and the feasibility study assumed a total of 17 wells would be required. Based on the current use and industrial nature (railroad spurs, automotive shop, gravel area, concrete pit, and existing groundwater monitoring wells) of the site, the proposed activities and new wells are not anticipated to affect the aesthetics. The project will not result in the addition of new light and/or glare and will not block any views, or obstruct any scenic vista or view open to the public.

Therefore, project activities would not:

a. Have a substantial adverse effect on a scenic vista.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a state scenic highway.

c Substantially degrade the existing visual character or quality of the site and its surroundings.

d. Create a new source of substantial light of glare that would adversely affect day or nighttime views in the area.

References: 4, 5

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

2. Agricultural Resources

Project activities likely to create an impact:

There are no activities that could potentially create an impact

Description of Environmental Setting:

No agriculture exists at or within a one-mile radius of IR Site 40. The closest agricultural areas are the two agricultural out leases located within the Station boundary approximately 1.2 miles east of the site. There are no beneficial uses (including no agricultural uses) of VOC-affected groundwater in the shallow aquifer at NAVWPNSTA Seal Beach. All the government- and privately owned wells near the base are completed within the deeper regional aquifer, which has not been impacted by site-related contamination.

Analysis of Potential Impacts:

IR Site 40 is not an agricultural site. All activities will be performed on site and targeted to cleanup of the groundwater plume located at IR Site 40. Therefore, no impact is expected to the surrounding agricultural land.

Therefore, project activities would not:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

b. Conflict with existing zoning or agriculture use, or Williamson Act contract.

c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural uses.

References: 4

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

3. Air Quality

Project activities likely to create an impact:

- Volatilization of chemicals of concern (COCs) during well installation activities
- Volatilization of COCs during groundwater sampling
- Generation of methane and hydrogen sulfide gases

Description of Environmental Setting:

The South Coast Air Quality Management District (SCAQMD) is the air pollution control agency for the four-county region including the counties of Los Angeles, Orange, and parts of Riverside and San Bernardino. This area of 10,743 square miles is home to more than about half of California's population. It is the second most populated urban area in the United States. While the SCAQMD continues to make progress toward improving its air quality and to pursue strategies to improve its air quality and to comply with state and federal requirements, the air in the district is far from meeting air quality standards. To reach the clean air goal in the years remaining before Clean Air Act deadlines, Southern California plans to intensify its pollution reduction efforts. To ensure progress toward that end, the SCAQMD, in conjunction with the California Air Resources Board, the Southern California Association of Governments, and the U.S. Environmental Protection Agency, is preparing the 2003 revision to its Air Quality Management Plan. The plan outlines the air pollution control measures needed to meet federal health standards for ozone by 2010 and for fine particulates, known as PM 10, by 2006. It also demonstrates how the federal standard for carbon monoxide, achieved for the first time at the end of last year, will be maintained. Lastly, the plan examines what will be needed to achieve new and more stringent health standards for ozone and ultrafine particulates, known as PM 2.5. The plan employs up-to-date science an analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources,

on-road and-off-road mobile sources and area sources. This plan points to the urgent need for additional emission reductions (beyond those incorporated in the 1997/99 Plan) to offset increased emission estimated from mobile sources and meet all federal criteria pollutant standard within the time frames allowed under the federal Clean Air Act. Presently the SCAQMD is in nonattainment for ozone and PM10. The latest data from the California Air Resources Board shows that emissions from cars, trucks, and other vehicles-particularly older cars are significantly higher than previously estimated. For the year 1997, VOC emissions from on-road vehicles were 533 tons per day -20 percent higher than previously estimated. On-road vehicle emissions of oxides of nitrogen (NOx) are 841 tons per day- 39 percent higher than preciously estimated. VOC-from paints, consumer products and vehicle fuel combustion – and NOx, primarily from vehicle fuel combustion are the two major building blocks of ozone and fine particulates. The draft 2003 air quality plan identifies 24 air pollution measures to be adopted the SCAQM to further reduce emissions from businesses, industry, and paints. It also identifies 29 measures to be adopted by the California Air Resources Board and the U.S. Environmental Protection Agency to further reduce pollution from cars, trucks, construction equipment, aircraft, ships, and consumer products.

The climate at NAVWPNSTA Seal Beach is largely influenced by the Pacific high, which is a semi permanent high-pressure system located off the Pacific Coast that tends to migrate seasonally. During the summer, the high-pressure system moves northerly and produces persistent temperature inversions and predominantly northwest airflow. Skies remain clear, and little precipitation occurs because the high-pressure system tends to block migrating extra-tropical storms. Warm, moist tropical air from off the coast of Mexico also blows into southern California, bringing occasional thunderstorms and isolated showers that occur mainly over the mountains.

The Pacific high begins to shift southerly during the fall, and its effects are less pronounced, especially during the winter Extra-tropical storms can move into southern California, increasing precipitation and cooling temperatures. During the winter, Santa Ana wind conditions are not uncommon. Santa Ana winds occur when high pressure builds in the Great Basin area of Utah and Nevada. The clockwise circulation around the high-pressure system produces north to northeast winds, which can persist from several hours to a few days and reach sustained speeds of up to 60 miles per hour (mph).

Seal Beach climate is classified as a marine-influenced southern California coastal region with mild winters that average 52 degrees Fahrenheit (°F) and summers that average 68°F Air temperature extremes range from winter lows in the 30s to summer highs in the 90s. Annual precipitation averages 12.5 inches with approximately 90 percent occurring between the months of November and April. Although precipitation is low, a high humidity level is sustained owing to the proximity of the Pacific Ocean.

Prevailing winds at NAVWPNSTA Seal Beach average 3 8 mph from the west. Occasional strong, dry winds of up to 60 mph from the northeast occur in the fall, winter, and early spring due to Santa Ana conditions.

Methanogenic conditions created during Phase I of the pilot test resulted in a buildup of methane gas in wells. Concentrations measured in monitoring wells at IR Site 40exceeded the lower explosive limit. Methane was monitored, but not detected, inside Building 240, at cracks in the asphalt pavement, and at nearby sewer manhole covers. Concentrations measured in wells are likely an artifact of the well design, which allows methane gas to become trapped in the head space. Explosive levels of methane in the vadose zone soil are not likely, but cannot be ruled out without further monitoring. Compressed nitrogen, oxygen, and methane are planned for use during the cometabolic oxidation pilot test. Care will be taken to avoid damaging compressed gas cylinders during handling.

Analysis of Potential Impacts:

Volatilization of COCs may occur during well installation activities and groundwater sampling. Methane and hydrogen sulfide gases were generated during the pilot test and are expected to be generated during the project. The Site Specific Health and Safety Plan will include appropriate air monitoring for worker health and safety. However these gases dissipate quickly to safe levels in outdoor air It is unlikely that these gases will travel outside the boundary of IR Site 40, and not feasible that these gases will travel beyond the Station boundary. In addition, before coring the asphalt pavement, a brass rod will be driven through the pavement and a few inches into the subgrade. The rod will be removed to allow measurement of soil gas for explosive gases below the pavement. Explosive gases will be monitored continuously during drilling. Work will be suspended if concentrations greater than 20 percent of the lower explosive limit are indicated.

Air monitoring for methane gas was conducted in and around the Site 40 test area during the *in situ* lactate enhanced bioremediation pilot test, mainly for the health and safety of the workers. The air monitoring results are discussed in Section 5.5 of the final Technical Memorandum on Pilot Test for *In situ* Enhanced Bioremediation at IR Site 40 (Bechtel Environmental, Inc., 2003a) Air monitoring for methane gas and hydrogen sulfide gas continues in and around the test

area as part of the Phase II bioaugmentation pilot test. 2003b). A report will be prepared upon completion of the phase II pilot test and will address the results of air monitoring at Site 40. Air monitoring will also occur during sampling events. Sampling events will occur quarterly and will last from two to four hours.

The activities associated with the proposed project are not expected to create objectionable odors because the nearest residential area is approximately 400 feet away. The potential volatilization of COCs and generation of methane and hydrogen sulfide gases would have a negligible impact to the air quality plan because these gases dissipate quickly into the air Consequently, a large number of people are not expected to be affected. However, in the event that odors are created, the lead agency will comply with SCAQMD Rule 402-Nuisance as stated below. Rule 402 – Nuisance. This rule prohibits the discharge of emissions from any source in which quantities of air contaminants may cause injury, detriment, nuisance, or annoyance to the public. The rule also prohibits emissions that may endanger the comfort, repose, health or safety of the public.

Therefore, project activities would not:

a. Conflict with or obstruct implementation of the applicable air quality plan.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

c. Result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

d. Expose sensitive receptors to substantial pollutant concentrations.

e. Create objectionable odors affecting a substantial number of people.

f. Result in human exposure to Naturally Occurring Asbestos (see also Geology and Soils, f.).

In addition, the following are addressed to meet the requirements set forth under Section 711.4, Fish and Game Code and 753.5, Title 14, Code of California Regulations relating to filing of environmental fees:

- Degradation of any air resources which will individually or cumulatively result in a loss of biological diversity among the plants and animals residing in that air.

References: 2, 4, 16 and 19

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

4. Biological Resources

Project activities likely to create an impact:

- Construction of monitoring and injection wells

Description of Environmental Setting:

Areas at IR Site 40 are paved, occupied by buildings, gravel covered, or bare soil is present. Vegetation is sparse and dominated by non-native plant communities. The limited habitat is used by wildlife consisting of birds and ground squirrels. This is consistent with other developed areas at the Station. Results of the ecological screening risk assessment concluded that there is no exposure pathway for chemicals in groundwater to reach ecological receptors at the site.

The Seal Beach National Wildlife Refuge, located within the Station boundaries, is approximately 1,000 feet east of IR Site 40. The refuge supports a large variety of wetland receptors including plants, organisms that live in the mud and silt of the marsh, plankton, various fish, numerous species of birds, and mammals such as mice and ground squirrels. Evaluation of the data shows that the VOC plume has not reached the refuge, and that a slight downward gradient exists which indicates the potential for downward migration. In addition, a clay layer is present in the marsh that acts as a lithologic control by precluding the groundwater flow from reaching surface water in the refuge. Therefore, there is no complete exposure pathway for chemicals in groundwater at IR Site 40 to reach the refuge and no ecological impact.

Based on the ecological risk screening, hazard indexes associated with exposure to metals and VOC in soil were greater than 1 for all ecological receptors at IR Site 40. A hazard index of greater than 1 indicates a potential for adverse effects on wildlife. However, the lack of suitable habitat for foraging and nesting would indicate that wildlife receptors would not use the site. The likelihood of complete pathways to soil with concentrations similar to those used in the assessment is small. The maximum reported concentrations used in the risk screening were from samples collected from beneath the paved areas. Therefore, it is not likely that chemicals at IR Site 40 would have an adverse impact on ecological receptors and no actions to further protect the ecology are required.

Because of the distance of IR Site 40 to the nearest surface water body and the depth to the groundwater table, exposure to aquatic receptors is not considered at this site.

Analysis of Potential Impacts:

The purpose of this groundwater remediation project is to degrade VOC to harmless byproducts that otherwise may be hazardous to humans and ecological receptors. Therefore, the long-term impacts to the environment from the project will be beneficial.

Removal of ruderal plants located in the gravel area may occur during project activities. These plants (weeds) do not contribute to the aesthetics or biological significance of the site. No riparian or sensitive habitat including wetlands, marshes, or any water bodies exist on the site. No protected, endangered or threatened plant species under special management requirements have been identified at the site.

No vegetation is present at the site that would provide a nesting or foraging opportunity for small animals. Impacts to animals are expected to be minimal because of the industrial nature of the site.

The report from the Department of Fish and Game, June 2, 2003, for the Long Beach quadrant was reviewed. The species listed in the report Sterna antillarum browni nests from the San Francisco Bay South to Northern Baja California. This bird is a colonial breeder on bare or sparsely vegetated, flat substrates, sand beaches, alkali flats, land fills, or paved areas. Current locations include Belmont Shore Beach and Terminal Island, Long Beach. Other species occurring in or near Long Beach, Terminal Island along the coast and/or in sandy areas include the sandy beach tiger beetle (Cicindela hirticollis gravida), and the monarch butterfly (Danaus plexippus). The southern tarplant (Centromadia parryi ssp. australis) is also found in these locations and in valley and foothill grassland, and vernal pools.

A Rarefind report from the Department of Fish and Game, June 2, 2003, for the Long Beach quadrant was reviewed. The species listed in the report are found in habitats, such as coastal areas, parks, grasslands, vernal pools, marshes and swamps, that are not environments found at the project site.

Based on the above analysis, the project activities would not:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U S. Fish and Wildlife Service.

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites

e. Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

In addition, the following are addressed to meet the requirements set forth under Section 711.4, Fish and Game Code and 753.5, Title 14, Code of California Regulations relating to filing of environmental fees:

Based on the above analysis, the project activities would not:

Plants:

- Changes to any riparian land or wetlands under state or federal jurisdiction.
- Changes to soil required to sustain habitat for fish and wildlife.
- Any adverse effect to native and non-native plant life.
- Effects to rare and unique plant life and ecological communities dependent on plant life.
- Any adverse effect to listed threatened and endangered plants.
- Effects on habitat in which listed threatened and endangered plants are believed to reside.
- Effects on species of plants listed as protected or identified for special management in the Fish and Game Code, the Public Resources Code, the Water Code, or regulations adopted thereunder.
- Effects on marine and terrestrial plant species subject to the jurisdiction of the Department of Fish and Game and ecological communities in which they reside.

Animals:

- Effects on listed threatened or endangered animals.
- Effects on habitat in which listed threatened or endangered animals are believed to reside.
- Effects on species of animals listed as protected or identified for special management in the Fish and Game Code, the Public Resources Code, the Water Code, or regulations adopted thereunder.
- Effects on marine and terrestrial animal species subject to the jurisdiction of the Department of Fish and Game and the ecological communities in which they reside.

References: 5, 6, and 17

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

5. Cultural Resources

Project activities likely to create an impact:

Drilling of wells

Description of Environmental Setting:

According to the findings stated in the Archaeological Resources Protection Plan, IR Site 40 contains no archaeological resources or historic structures. Samples collected and observations made at IR Site 40 during the 1995 archaeological survey concluded that there are no archaeological resources present within IR Site 40. The findings of the Archaeological Resources Protection Plan were submitted to and concurred by the City of Seal Beach and the State Historic Preservation Officer (SHPO).

Building 240 was evaluated for historic significance and determined ineligible for listing individually or as a contributing element of any historic district. The SHPO concurred with this determination in March 1995.

Analysis of Potential Impacts:

Proposed project activities will not impact Building 240. Based on this and the above determination for IR Site 40, impacts to cultural resources are not a concern. However, if in the course of project work, cultural resources are observed, the Navy will cease work. The findings will be evaluated in consultation with the State Historic Preservation Officer or another qualified professional.

Therefore, project activities would not:

a. Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5.

b. Cause a substantial adverse change in the significance of an archeological resource pursuant to 15064.5.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

d. Disturb any human remains, including those interred outside of formal cemeteries.

References: 7, 8, 9, and 10

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

6. Geology and Soils

Project activities likely to create an impact:

- Installation of monitoring and injection wells

Description of Environmental Setting:

NAVWPNSTA Seal Beach is bordered to the southwest by Anaheim Bay and to the north, east, and west by highly developed urban communities. Most of NAVWPNSTA Seal Beach lies on relatively flat alluvial deposits that slope evenly from approximately 20 feet above sea level in the northeastern part of the facility, to sea level in the tidal salt marsh of the

Seal Beach NWR in the southwest. The most pronounced topographic feature on NAVWPNSTA Seal Beach is part of Landing Hill on the southwest side of the facility. Landing Hill is an uplifted area along the Newport-Inglewood Fault Zone that covers an area extending west of NAVWPNSTA Seal Beach across Seal Beach Boulevard. Landing Hill reaches a maximum elevation of about 50 feet above sea level on the facility.

NAVWPNSTA Seal Beach is located adjacent to the Pacific Ocean at the seaward edge of the Orange County Coastal Plain at the northwest corner of Orange County, California. The northwest-trending Newport-Inglewood structural zone (NISZ) underlies the southwestern half of NAVWPNSTA Seal Beach. The NISZ consists of a complex set of faults and folds that extend from Newport Beach approximately 10 miles southeast of NAVWPNSTA Seal Beach to Beverly Hills at the base of the Santa Monica Mountains, approximately 30 miles northwest of the Station. Uplift along the NISZ has produced a line of low coastal hills and mesas near the southern end, including Landing Hill along the west edge of NAVWPNSTA Seal Beach. Adjacent to Landing Hill on the east is Sunset Gap, a wetland comprising coastal salt marsh and tidal mud flats.

The geologic units observed at IR Site 40 are as follows:

- Surficial Soils – silty sands and clayey sands, as well as sandy clay and clays, with considerable lateral lithological variation
- First Sand Unit – sands to silty sands within a few feet of the water table extending to 7 5 to 10 feet bgs
- Second Sand Unit – saturated, sands to silty sands at 9 to 21 feet bgs, extending to 28 to 41 feet bgs
- Third Sand Unit – saturated, sands to silty sands at 38 to 52 feet bgs, depending on the location

Lower-permeability intervals containing clay, silty clay, and silt separate the coarser-grained units noted above. Groundwater is present in three water bearing zones (WBZs) within the shallow groundwater aquifer: shallow (9.5 to 20 5 feet bgs), intermediate (20 0 to 30.3 feet bgs), and deep (45 to 55 feet bgs).

Analysis of Potential Impacts.

No excavation activities are planned in conjunction with the proposed groundwater remediation at IR Site 40. Therefore, no unstable earth conditions are associated with the proposed activities. Installation of monitoring and injection wells involves removal of small amounts of soil that would not impact the surrounding area. The boreholes for well installation will be approximately 11 inches in diameter and the well PVC casings and screen will be a nominal four inches in diameter.

Therefore, project activities would not:

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

   - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. (Refer to Division of Mines and Geology Special Publication 42):
   - Strong seismic ground shaking:
   - Seismic-related ground failure, including liquefaction:
   - Landslides:

b. Result in substantial soil erosion or the loss of topsoil

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property

e Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of water.

f Be located in an area containing naturally occurring asbestos (see also Air Quality, f.).

Specific References (list a, b, c, etc): 3, 5

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

7. Hazards and Hazardous Materials

Project activities likely to create an impact:

- Installation of monitoring and injection wells
- Injection of sodium lactate, dechlorinating microorganisms, oxygen and methane
- Methane and hydrogen sulfide gas production from bioremediation

Description of Environmental Setting:

The potential for movement of VOC from soil to groundwater at IR Site 40 is negligible. Results of soil sampling indicated that most of the original releases of VOC to the soil have already migrated to the groundwater or evaporated into the air. Metals were identified in the soil at IR Site 40 at background (naturally occurring) levels for soils found throughout NAVWPNSTA Seal Beach, and based on the human health screening risk assessment determined the cancer risk posed by soils to be less than the NCP point of departure of $1x10^{-6}$ (one in one million). Therefore, soils were ruled out as a health or environmental concern.

Analytical results indicate the groundwater plume primarily contains PCE. Other VOC present are TCE, and to a much lesser extent, Dichloroethene (DCE), PCE, and TCE were determined to be the VOC of concern in groundwater. The human health screening risk assessment determined the cancer risk posed by groundwater to be 4.1×10^{-3} (four in 1,000 over a 30-year span), and the hazard index to be 85, indicating a potential for adverse health effects. These values indicate that the chemicals of potential concern related to past site activities do pose a potential adverse health effect if the groundwater is used for domestic purposes.

Methanogenic conditions created during Phase I of the pilot test resulted in a buildup of methane gas in wells. Concentrations measured in monitoring wells at IR Site 40exceeded the lower explosive limit. Methane was monitored, but not detected, inside Building 240, at cracks in the asphalt pavement, and at nearby sewer manhole covers. Concentrations measured in wells are likely an artifact of the well design, which allows methane gas to become trapped in the head space. Explosive levels of methane in the vadose zone soil are not likely, but cannot be ruled out without further monitoring. Compressed nitrogen, oxygen, and methane are planned for use during the cometabolic oxidation pilot test. Care will be taken to avoid damaging compressed gas cylinders during handling.

Analysis of Potential Impacts.

Although contamination exists at the site, exposure to contaminants during project activities is minimal. Because the proposed remediation is *in situ*, the only potential exposure pathway to the VOC-contaminated groundwater is during installation of monitoring or injection wells. Installation of wells into plumes is a routine process and health and safety precautions will be taken. There is the potential for exposure to low-level contamination in groundwater. The contaminants are not present at concentrations that would cause any related health affects due to short-term exposure. As a safety precaution, construction personnel will be required to wear the appropriate level PPE to minimize potential exposure.

PPE, such as gloves and eye protection, will also be required as a safety precaution when handling sodium lactate, and dechlorinating microorganisms. Even though sodium lactate is an environmentally nonhazardous substance, steps will be taken to minimize contact. Similarly, the culture of dechlorinating microorganisms proposed for use, KB-1 (comprised of *Dehalococcoides* organisms and a consortium of typical anaerobic and facultative bacteria), has been tested extensively using both molecular and classical culturing techniques to verify the absence of human pathogens or other concern for the public. The culture was obtained from environmental samples and does not contain genetically modified microorganisms. Just as the sodium lactate is consumed rapidly in the groundwater by native microorganisms, the *Dehalococcoides* population will die after the food supply (chlorinated compounds) is depleted and will be consumed by native microorganisms. Neither substance will persist in the environment.

Methane and hydrogen sulfide gases generated during the pilot testing dissipate quickly to safe levels in outdoor air. It is highly unlikely that gases generated would travel outside of the IR Site 40 remediation area, and not feasible that gases would travel beyond the Station boundary. Potential hazards from buildup of explosive gas (methane) and exposure to toxic gas (hydrogen sulfide) are monitored for crews drilling or sampling monitoring wells. Methane is not toxic, but is potentially explosive at levels between 5.3 and 15 percent in air. Hydrogen sulfide has a threshold limit value of 5 parts per million, based on a time-weighted average for a conventional work week. Safety precautions, such as air monitoring and immediate work stoppage if unsafe levels are detected and restricted access to the site and "no smoking" signs will be posted as documented in the Site-Specific Safety and Health Plan. Hazards have not been identified for workers outside of the remediation area, or to the general public, from gases that will be generated during this project. In addition, before coring the asphalt pavement, a brass rod will be driven through the pavement and a few inches into the subgrade. The rod will be removed to allow measurement of soil gas for explosive gases below the pavement. Explosive gases will be monitored continuously during drilling. Work will be suspended if concentrations greater than 20 percent of the lower explosive limit are indicated.

Describe to what extent project activities would:

a. Create a significant hazard to the public or the environment throughout the routine transport, use or disposal of hazardous materials.

   The project will not involve routine transport of hazardous materials. Only transport of hazardous materials samples is a possibility. If hazardous materials samples are transported, California Code of Regulations, Title 22 and Code of Federal Regulations, Title 49 will be complied with in the course of transportation.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

   Access to the site will be restricted, and the site will be fenced with a chain link fence. Warning signs will be posted. Air monitoring will be conducted at the project site using an Explosimeter to monitor levels of flammable, explosive gas. Work will be suspended if concentrations greater than 20 percent of the lower explosive limit are indicated.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school.

   Mcgaw Elementary School is located approximately one quarter mile from the site. The site will be fenced, signs will be posted, and access to the site will be controlled as described in item b. above.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to public or the environment

   The site is listed. This project will destroy the contaminants through in situ (in place) bioremediation and provide institutional controls to reduce the potential for harm to the public until contaminants are fully remediated.

e. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

   The project will not interfere with or impair an adopted emergency response or evacuation plan.

References: 1, 3, 5, 11, and 18

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

8. Hydrology and Water Quality

Project activities likely to create an impact:

The purpose of the project is to improve the current water quality at IR Site 40; no hydrologic impacts are anticipated.

Description of Environmental Setting:

IR Site 40 is part of Operable Unit 4. IR Site 40 is located in the southwestern portion of NAVWPNSTA Seal Beach. The site includes an active locomotive shop and a gravel area located north of and adjacent to the building. A concrete pit within the building floor provides access for repair and maintenance on the underside of the locomotives. This pit serves as a collection point for oils and solvents spilled during maintenance activities. Oil that collected in the pit was discharged through a drainpipe onto a gravel area to the north of the building until the pipe was capped in 1978. Currently, the gravel area is partially paved.

Releases of chlorinated solvents migrated through the soil, resulting in a groundwater plume containing primarily PCE, along with lesser concentrations of TCE, cis-1,2-DCE, trans-1,2-DCE, and chloroform. The total mass of PCE in groundwater at IR Site 40 has been estimated to be approximately 6 12 pounds. Much of this is believed to be contained within the second WBZ, although VOC have been reported in the first as well as the third WBZ.

Although groundwater impacted by the plume at IR Site 40 does not serve as a source of water for any of the beneficial uses designated in the California Regional Water Quality Control Board's (RWQCB) Water Quality Control Plan, Santa Ana River Basin (Basin Plan) and does not pose an immediate threat to human health or the environment, the human health risk for groundwater exceeds the NCP-defined acceptable cancer risk and hazard index. These risk-based values warrant the need for cleanup action for groundwater. The maximum reported concentrations in micrograms per liter for VOC in groundwater at IR Site 40 are listed below along with the California Maximum Contaminant Levels and the project goals. Background contaminant levels in water and in soil were assumed to be nondetect.

Chemical VOC	Concentration in Micrograms per liter Maximum Reported Concentration	California Maximum Contaminant Level (MCL) (Project Goal)	U.S. EPA MCL Project Goal
PCE	3,940[2]	5	5
TCE	273[2]	5	5
Cis-1,2-DCE	1,500[3]	6	70
Vinyl Chloride (VC)	1[3]	2	0.5

Sources: Federal and State cleanup standards are established in 40 Code of Federal Regulations 141.61(a) and Title 22 California Code of Regulations.
1 All values reported in micrograms per liter.
2 Maximum reported concentrations from monitoring results in the Extended Removal Site Evaluation Report (BNI 1999).
3 Maximum reported concentrations from the In Situ Bioremediation Pilot Test (BNI 2002).

Analytical results determined that the groundwater plume primarily contains PCE. Other VOC present are TCE, and to a much lesser extent, DCE. PCE and TCE were determined to be the VOC of concern in groundwater. Analytical results indicate the plume is approximately 250 feet by 450 feet in size, and reaches a maximum depth of 66 feet below the surface. The movement of the plume is slow and in the direction of the Seal Beach NWR and its marshes.

Surface waters from IR Site 40 are not expected to impact local on-station populations The bulk of the surface runoff from IR Site 40 is directed by topography to a drainage ditch east of the site, with some localized areas directed to a French drain south of the site.

Analysis of Potential Impacts.

Describe to what extent project activities would:

a. Violate any water quality standards or waste discharge requirements.

The proposed project at IR Site 40 is designed to degrade the VOC in groundwater to harmless byproducts. The final remedy for IR Site 40 employs the injection of environmentally safe bioremediation substrate into the groundwater to promote the breakdown of the PCE and TCE to carbon dioxide and water. The project will improve the water quality by removing the VOC and will not impact the hydrology or water quality.

Approximately 486,000 gallons of potable water will be injected into the aquifer through an array of 15 injection wells The injection events are expected to be performed in one well at a time over approximately one year. Assuming standard 8-hour work days, the flow rate is estimated to be 4 to 5 gallons per minute (gpm) which is approximately equivalent to that of a standard garden hose. This flow rate is not expected to overburden the Station's potable water supply and distribution system.

The *in situ* lactate enhanced bioremediation pilot test indicated that the hydrogeology of Site 40 was able to accommodate pilot test flow rates of approximately 4 to 5 gpm without the need for supplemental hydraulic controls. Test results were reviewed by DTSC and RWQCB, and both concurred with the Navy's findings and recommendations. Further pilot testing of selected technology refinements are ongoing at Site 40 If the operational configuration required for full-scale implementation of these refinements differs considerably from that tested, then further evaluation of the hydrogeology and the need for supplemental hydraulic controls will be undertaken during the remedial design phase of the project.

The depth of the new wells will be determined during the remedial design phase of the project. The feasibility study (FS) assumed that 12 new application (injection) wells would be installed to a depth of approximately 40 feet below ground surface (bgs), and five new monitoring wells installed to depths ranging from 35 to 65 feet bgs.

The groundwater monitoring program to be conducted during Site 40 groundwater remediation will be developed during the remedial design phase of the project. The program is expected to be similar to that described in the FS Report and will be reviewed and approved by DTSC and RWQCB before implementation. The FS assumed the following sampling frequency and analyses:

- Sample frequency: Weekly during the first 6 months, quarterly from 6 to 18 months, and biannually from years 2 to 5.
- Analyses (laboratory and/or field test kit): Volatile organic compounds (VOC), total organic carbon (TOC), total dissolved solids (TDS), alkalinity, major anions (chloride, nitrate, nitrite, and sulfate), ferrous iron, chemical oxygen demand (COD), dissolved gases (methane, ethane, ethene, oxygen and carbon dioxide).

Based on the current groundwater monitoring program and the results of pilot testing conducted to date at Site 40, analyses also may include one or more of the following: hydrogen sulfide, ammonia, major cations (calcium, magnesium, potassium, sodium, and iron), pH, temperature, conductivity, oxidation reduction potential (ORP), deoxyribonucleic acid (DNA), and organic acids (acetate, butyrate, and propionate)

b Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficient in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)

See response to item a. above. The project will not have an adverse impact on the groundwater volume.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off-site.

Surface waters from IR Site 40 are not expected to impact local on-station populations. The bulk of the surface runoff from IR Site 40 is directed by topography to a drainage ditch east of the site, with some localized areas directed to a French drain south of the site. In addition, refer to the response under item a.

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site.

See response to items a and c above. The existing drainage patterns and flow rates would not be significantly altered. As stated previously, the injection events are expected to be performed in one well at a time over approximately one year. Assuming standard 8-hour work days, the flow rate is estimated to be 4 to 5 gallons per minute (gpm) which is approximately equivalent to that of a standard garden hose. This flow rate is not expected to overburden the Station's potable water supply and distribution system.

e Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

See response to items a and c above. The project will not create a source of polluted run off. Contaminants will be treated in situ (in place) through bioremediation.

f. Otherwise substantially degrade water quality.

See item a. above. The remediation method will render the contaminants harmless and will improve the water quality by removing VOC.

g. Place within a 100-flood hazard area structures which would impede or redirect flood flows.

No structures to be built that will alter or impede water flows.

h. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

No structures will be potentially affected by the project work

i. Inundation by sieche, tsunami or mudflow.

The project will not cause or contribute to such events.

In addition, the following are addressed to meet the requirements set forth under Section 711.4, Fish and Game Code and 753.5, Title 14, Code of California Regulations relating to filing of environmental fees:

The project will not cause or contribute to changes in the following:

- Changes to riparian land, rivers, streams, watercourses and wetlands under state and federal jurisdiction.
- Changes to any water resources which will individually or cumulatively result in a loss of biological diversity among the plants and animals residing in that water.

References: 2, 3, 5, 6, and 12

Findings of Significance:

☐ Potentially Significant Impact

☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

9. Land Use and Planning

Project activities likely to create an impact:

- Institutional controls placed on the VOC plume and associated buffer zone (500 feet from the edge of the plume in all directions) that require DON and agency approval prior to installation of new wells
- Institutional controls that limit access to the site
- Institutional controls that protect the integrity of the remediation system until cleanup goals have been achieved

Description of Environmental Setting:

IR Site 40 is located in the southwestern portion of NAVWPNSTA Seal Beach. This site includes a locomotive shop (Building 240) and a gravel area located north of and adjacent to the building Building 240, located on IR Site 40, is an active locomotive repair shop. Four railroad spurs terminate in the building and provide access for locomotive repair A concrete pit within the building floor provides access for repair and maintenance on the underside of the locomotives. This pit serves as a collection point for oils and solvents spilled during maintenance activities.

IR Site 40 is located within an industrial area. The future land use is anticipated to remain the same as it is today with Building 240 continuing to operate as a locomotive repair shop. The remediation system and institutional controls are not anticipated to impact the land use at the site.

Shallow groundwater underlying IR Site 40 currently does not serve as a water source for any of the beneficial uses designated in the Basin Plan, nor is it anticipated to be used for those purposes in the future due to its high brackish to saline quality and hardness.

Analysis of Potential Impacts.

Institutional controls are a component of the proposed project. The objectives of the institutional controls are to prevent exposure to VOC-contaminated groundwater, maintain the integrity of the remedial action until cleanup goals are achieved, and assure access to the site by the DON and regulatory agencies to maintain the remedy and conduct any further investigation and response action if required.

Proposed institutional controls, in the form of land-use restrictions on property overlying the IR Site 40 groundwater plume, are:

- No new groundwater extraction, injection, or drinking water wells shall be installed within the IR Site 40 groundwater plume or associated buffer zone without prior review and written approval from the DON and DTSC;
- Injection and monitoring wells and associated piping and equipment that are included in the remedial action shall not be altered, disturbed, or removed without the prior review and written approval from the DON and DTSC; and
- The DON, DTSC, and their authorized agents, employees, contractors, and subcontractors will have the right to enter upon the premises to conduct investigation, test, or surveys; inspect field activities or construct, operate and maintain the remedial action or undertake any other remedial response or remedial action as required or necessary under the cleanup program, including but not limited to monitoring wells, pumping wells, and treatment facilities.

The Navy would implement institutional controls through the NAVWPNSTA Seal Beach Base Master Plan and these controls would remain in effect until site cleanup goals are met.

Therefore, project activities would not:

a. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

b. Conflict with any applicable habitat conservation plan or natural community conservation plan.

References: 1, 3

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

10. Mineral Resources

Project activities likely to create an impact:

- Installation of monitoring and injection wells.

Description of Environmental Setting:

The only natural resource that the project activities will consume is fuel. Fuel will be needed for operation of the drill rig for well installation and to drive to and from the site.

Analysis of Potential Impacts.

The potential for recovering natural resources, such as natural gas, crude oil, or minerals, does not exist at the site. The only resources that will be consumed by the project will be diesel fuel. It is assumed drilling contractors will travel approximately 50 miles to IR Site 40. Fuel will also be used to keep the drill rig running idle during drilling activities. Therefore, it is anticipated that approximately 30 gallons of diesel fuel will be required for on-site well installation activities and approximately 30 gallons would be required for transportation to and from the site, for a total of 60 gallons.

Visits to the site are anticipated to be five days per week the first year. Personnel performing these visits will often have other responsibilities requiring them to travel to NAVWPNSTA and, therefore, the consumed mineral resources will be absorbed by multiple projects. Therefore, assuming that one-gallon of gas is used per day and that 260 visits are conducted an additional 260 gallons of gasoline will be required for operation and maintenance of the project. After the first year of the project, visits will decrease to once a week. This will add approximately 52 gallons per subsequent year until remediation goals are achieved.

Therefore, project activities would not:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

b Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

References: 1

Findings of Significance:

☐ Potentially Significant Impact

☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

11. Noise

Project activities likely to create an impact:

- Installation of monitoring and injection wells

Description of Environmental Setting:

IR Site 40 is located within an industrial area of NAVWPNSTA Seal Beach with few pedestrians. The closest residential area to the project site is the military housing located within the Station boundary along Seal Beach Boulevard approximately 1,500 feet (457 meters) west of IR Site 40. Seal Beach Boulevard is the NVWPNSTA Boundary to the west. Land west of Seal Beach Boulevard is off-station and used for non-military housing. The closest building to IR Site 40 is Building 240, Locomotive Shop, which is located approximately at the center of the site. This building is occupied intermittently during locomotive maintenance. Normally occupied buildings in close proximity to IR Site 40 include Building 230 to the northeast, 231 to the north, 239 to the southeast, and Building 241 to the west.

Analysis of Potential Impacts.

Although the exact number of monitoring and injection wells will be determined in the design phase of the remedial action, for purposes of this CEQA review, the assumption made in the feasibility study was also used for this CEQA review. The feasibility study assumes that a total of 17 wells (5 monitoring and 12 injection) will be installed at IR Site 40. Because these wells will be relatively shallow and there are no surface obstructions to impede drilling, it is assumed that the driller will be able to install up to 3 wells per day. However, to account for possible field unknowns and to conservatively envelope, the potential impacts for this CEQA review, it is assumed that the driller will install 2 wells per day. Therefore, the drill rig and support truck would be at the site for approximately 9 days. The drill rig and support truck will remain on site for the duration of the drilling activities. After well installation is complete the drill rig and support truck will be demobilized. The driller will then develop each well using a development (Smeal) rig. Assuming that the rig is capable of developing 2 wells per day, the development rig would be on site for approximately 9 days. The development rig will remain on site for the duration of development activities, and then be demobilized.

The noisiest part of the project will involve advancement of the drill (auger). Levels are anticipated to be approximately 90 dB at a distance of 5 meters. Cal/OSHA regulations, Title 8, California Code of Regulations (CCR), Section 5096, limits workers exposed to 85 dB to an 8-hour work period. U.S. Environmental Protection Agency (USEPA) has identified a level of 55 dB as adequate to protect outdoor activities against interference and annoyance due to noise. This level will permit spoken conversation and other activities such as sleeping, working and recreation, which are part of the daily human condition.

The expected noise level or sound pressure level (SPL) at a given distance from a noise source can be approximated using the following equation:

$SPL_{final} = SPL_{initial} - 20 \log (\text{final distance/initial distance})$

At the military housing located approximately 1,500 feet (457 meters) west of the site, maximum noise levels are estimated to be approximately 51 dB, which is within the USEPA guideline for preventing activity interference and annoyance outdoors. Workers engaged in drilling activities will be required to wear hearing protection when noise levels from operating equipment exceed 85 dB. Drilling activities over a continuous 8-hour period are not expected to be conducted within 30 feet (9 meters) of the normally occupied buildings adjacent to the site. At this distance, the noise levels in these normally occupied work areas due to drilling at IR Site 40 will be well below the Cal/OSHA limit of 85 dB for an 8-hour work period.

Therefore, project activities would not:

a. Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b. Expose persons to or generate excessive groundbourne vibration or groundbourne noise levels.

c. Cause a substantial permanent increase in ambient noise levels in the vicinity above levels existing without the project.

d. Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

References: 13, 14, and 15

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

12. Population and Housing

Project activities likely to create an impact:

None of the activities are anticipated to create an impact.

Description of Environmental Setting:

The site is located approximately 1,500 feet (0.28 mile) from military housing for NAVWPNSTA Seal Beach.

Analysis of Potential Impacts:

The project will have no impact on the population and housing activities of the surrounding area. The population of NAVWPNSTA Seal Beach is determined by the staffing needs of the defense missions assigned to the Station. The project will not alter the location, distribution, density, or growth rate of the human population, nor affect existing housing, nor create a demand for additional housing.

Therefore, project activities would not:

a. Induce substantial population growth in area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

b Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.

c Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

References: 1

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

13. Public Services

Project activities likely to create an impact:

None of the activities are anticipated to create an impact.

Description of Environmental Setting:

The need for public services is dependent on the local population. The work forces at NAVWPNSTA Seal Beach, and hence the population in the surrounding areas, is dependent on the strategic policies of the Department of Defense (DoD), the defense missions assigned to military bases, and the level of staffing needed to carry out the missions assigned to a particular base. The public services surrounding NAVWPNSTA Seal Beach include: J. H. McGaugh Elementary School, Long Beach Community Hospital, Los Alamitos Medical Center, Seal Beach Police Station, and Seal Beach Fire Department.

Analysis of Potential Impacts.

Since the project will not increase the permanent work force at NAVWPNSTA Seal Beach, or affect the population in the surrounding area, public services such as fire and police protection, schools, roads, hospitals and other medical facilities will not be impacted. The number of project personnel involved in the project may range from 1 to 6 persons depending upon the phase of the project.

The construction phase, that includes the installation of wells, will require the largest number of people This phase may require up to 6 people for nine days while the system is implemented. After the remedial project has been implemented, the number of personnel involved in the project would decrease to roughly 1 to 2 people depending up what activities were required. Routine site visits are anticipated to occur daily and be performed by one person; groundwater monitoring will be less frequent and performed by two people. After the first year of implementation, routine site visits are anticipated to decrease in frequency to weekly.

Since the project field activities will involve a small number of personnel and the amount of hours required to do the job are small, the impacts on public services will be insignificant.

Therefore, project activities would not:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

- Fire protection
- Police protection
- Schools
- Parks
- Other public facilities

References:

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

14. Recreation

Project activities likely to create an impact:

- Installation of monitoring and injection wells

Description of Environmental Setting:

The project is located within an industrial portion of an active military base and is not available for recreational activities.

Analysis of Potential Impacts.

The project will not impact the quality or quantity of existing recreational opportunities in the surrounding areas.

Therefore, project activities would not:

a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

b. Include recreational facilities or require construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

References:

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

15. Transportation and Traffic

Project activities likely to create an impact:

- Installation of monitoring and injection wells
- Sampling of wells
- Routine maintenance activities

Description of Environmental Setting:

The majority of vehicular traffic entering and exiting NAWWPNSTA Seal Beach is from Westminster Boulevard through Gate 9 (Contractor's Gate) This gate is controlled by a traffic signal. Approximately 500 vehicles per day enter and exit the Station through Gate 9. Westminster Boulevard is a four-lane east-west thoroughfare that divides the Station into northern and southern sections. It intersects Seal Beach Boulevard, which is a six-lane north-south thoroughfare that defines the western boundary of the Station, and provides access to and from Interstate Highway 405 (San Diego Freeway) to the north.

Construction personnel and equipment required for the project will enter and exit the Station through Gate 9. IR Site 40 is located east of Seal Beach Boulevard, south of Industrial Road and west of Kitts Highway approximately 1.3 miles southeast of Gate 9. Access to the site from Gate 9 is south along Kitts Highway, west on Industrial Road and south on Anchor Road. Pedestrian traffic on these streets is negligible. The posted speed limit is 40 miles per hour (mph) on Kitts Highway and 15 mph on Industrial Road and Anchor Road. There are no other traffic restrictions on these roadways.

Analysis of Potential Impacts

The drill rig and development rig will enter and exit the Station at Gate 9 located at Westminster on the northern side of the Station and proceed directly to IR Site 40. Both the drill rig and development rig will remain on-site until well installation is complete. These activities are anticipated to last approximately nine days. On the days that the trucks enter and exit the site, traffic will be increased by approximately 0.2 percent. (Note: Because the trucks will not enter and exit the site on the same day, the percentage increase was divided in half to account for only one pass by the gate) IR Site 40 is drill-rig accessible, and located in an industrial portion of the Station that has regular truck traffic. The roads are large enough to accommodate large turns. The presence of the drill and development rigs and support truck are not anticipated to cause an impede traffic near and around IR Site 40.

For the first year of the project it is assumed that there will be personnel visiting the site approximately 5 days a week, and then weekly during the following years. However, most site visits will be combined with additional work on the Station. Therefore traffic in and out of the gate will be divided among various projects. Based on these assumptions, the traffic is anticipated to increase by approximately 1 percent the first year, and be decreased approximately 0.2 percent for subsequent years.

Describe to what extent project activities would:

a. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).

   The drill rig and development rig will enter and exit the Station at Gate 9 located at Westminster on the northern side of the Station and proceed directly to IR Site 40. Both the drill rig and development rig will remain on-site until well installation is complete. These activities are anticipated to last approximately nine days. On the days that the trucks enter and exit the site, traffic will be increased by approximately 0.2 percent. (Note: Because the trucks will not enter and exit the site on the same day, the percentage increase was divided in half to account for only one pass by the gate). IR Site 40 is drill-rig accessible, and located in an industrial portion of the Station that has regular truck traffic. The roads are large enough to accommodate large turns. The presence of the drill and development rigs and support truck are not anticipated to cause an impede traffic near and around IR Site 40.

b Exceed, either individually or cumulatively, a level of service standard established by the country congestion management agency for designated roads or highway.

   For the first year of the project it is assumed that there will be personnel visiting the site approximately 5 days a week, and then weekly during the following years. However, most site visits will be combined with additional work on the Station. Therefore traffic in and out of the gate will be divided among various projects. Based on these assumptions, the traffic is anticipated to increase by approximately 1 percent the first year, and be decreased approximately 0.2 percent for subsequent years.

c. Substantially increase hazards due to a design feature (e g., sharp curves or dangerous intersections) or incompatible uses (e g., farm equipment)

   See the response to item a. The roads are large enough to accommodate the equipment/trucks that will be coming through the access roads.

d. Result in inadequate emergency access

   See the response to item a. The equipment and support truck are not anticipated to impede traffic.

e Result in inadequate parking capacity.

The project will not affect parking capacity.

f. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

The project is not anticipated to affect the above plans or support services.

References:

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

16. Utilities and Service Systems

Project activities likely to create an impact:

- Installation of monitoring and injection wells

Description of Environmental Setting:

NAVWPNSTA Seal Beach has an existing water supply system and electrical power.

Analysis of Potential Impacts.

Utilities for the project will include electricity, potable water, and telephone services, all of which are currently available at NAVWPNSTA Seal Beach. The project does not anticipate the need to utilize the sanitary/industrial sewers or storm drainage systems.

During the construction phase of the project, the main demand for energy will be from the drill rigs and well installation equipment. As discussed in Item 10 (Mineral Resources) above, this demand will be satisfied by diesel fuel. Electrical power requirements for an on-site construction trailer will be provided by Southern California Edison (SCE) through the existing power supply system that provides electrical power to NAVWPNSTA Seal Beach.

Prior to commencement of intrusive activities, station utility maps will be reviewed and a geophysical survey will be conducted to locate buried utilities. Locations of proposed monitoring or injection wells may be modified to avoid contact with any active utilities. Manual methods of excavation (hand augering) will be employed within the vicinity of active utilities.

The construction phase of the project does not involve, address, nor result in the need for substantial amounts of energy. The project will only involve short duration field activities. This will be the only period during which energy will be consumed. No power shut downs are anticipated in the nearby buildings as a result of project activities. A field construction trailer will be mobilized near the site to serve as a field office. Power to the trailer will be provided from the existing Station electrical distribution system. All vehicles will run on diesel fuel.

The existing Station water supply will be adequate to provide the water needs of the project. Based on data from the pilot scale test study, the proposed remediation system will require approximately 1,800 gallons of water for each of the injection areas (assumed to be 15 in the feasibility study) for each day of injection (assumed to be 18 days). Based on these assumptions, the water needs of the project are estimated to be approximately 486,000 gallons. This potable water will be injected into the aquifer through an array of 15 injection wells. The injection events are expected to be performed in one well at a time over approximately one year. Assuming standard 8-hour work days, the flow rate is estimated to be 4 to 5 gallons per minute (gpm) which is approximately equivalent to that of a standard garden hose. This flow rate is not expected to overburden the Station's potable water supply and distribution system. The depth of the new wells will be

determined during the remedial design phase of the project. The feasibility study (FS) assumed that 12 new application (injection) wells would be installed to a depth of approximately 40 feet below ground surface (bgs), and five new monitoring wells installed to depths ranging from 35 to 65 feet bgs.

The *in situ* lactate enhanced bioremediation pilot test indicated that the hydrogeology of Site 40 was able to accommodate pilot test flow rates approximately 4 to 5 gpm without the need for supplemental hydraulic controls. Test results were reviewed by the DTSC and RWQCB, and both concurred with the Navy's findings and recommendations. Further pilot testing of selected technology refinements are ongoing at Site 40. If the operational configuration required for full-scale implementation of these refinements differs considerably from that tested, then further evaluation of the hydrogeology and the need for supplemental hydraulic controls will be undertaken during the remedial design phase of the project.

The project is not expected to impact the sanitary/industrial sewers or storm drainage systems. Review of existing underground maps, performing a geophysical utility survey, and manually excavating in the vicinity of active utilities will prevent the inadvertent disruption of utility services and adequately protect the health and safety of workers in and around this site.

Describe to what extent project activities would:

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

The project is not expected to impact the sanitary/industrial sewers or storm drainage systems. Review of existing underground maps, performing a geophysical utility survey, and manually excavating in the vicinity of active utilities will prevent the inadvertent disruption of utility services and adequately protect the health and safety of workers in and around this site.

b Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

The existing Station water supply will be adequate to provide the water needs of the project. Based on data from the pilot-scale test study, the proposed remediation system will require approximately 1,800 gallons of water for each of the injection areas (assumed to be 15 in the feasibility study) for each day of injection (assumed to be 18 days). Based on these assumptions, the water needs of the project are estimated to be approximately 486,000 gallons.

c Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Please refer to the response in item b. No new facilities will be required as the result of this project.

d Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.

Existing water supply sources will be used. No expansion will be required.

e. Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments.

See response to item a. No impact to the sanitary/industrial sewer or storm drainage systems is anticipated

f. Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs.

There will be no need for a landfill under this project.

g. Comply with federal, state, and local statutes and regulations related to solid waste.

The project entails in situ (in place) groundwater remediation of wastes. This enhanced bioremediation project was ranked the highest out of the five alternatives evaluated against the nine criteria in the National Oil and Hazard Substances Contingency Plan.

References: 1, 2, and 3

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

17. Cumulative Effects

Project activities likely to create an impact:

- Possible use of technology refinements and/or post treatment during the design phase to further accelerate the remediation process at the site;
- Installation of monitoring and injection wells; and
- Operation and maintenance of the bioremediation system.

Description of Environmental Setting:

The IR Program is the DoD program for conducting environmental investigations and remediation of sites contaminated by the release of hazardous substances in accordance with CERCLA. Technology refinements and/or post treatment may be implemented during the design phase to further accelerate the remediation process at the site These enhancements would constitute additional phases to accelerate the cleanup process.

Project activities at IR Site 40 may overlap the groundwater remediation activities at IR Site 70. Similar to IR Site 40, IR Site 70 will use injection and monitoring wells to implement an *in situ* treatment technology as part of the remediation system to treat VOC-contaminated groundwater

Analysis of Potential Impacts.

The use of innovative technologies for site remediation requires bench- and pilot-scale testing to determine their effectiveness at a site. Based on the results of the Pilot-Test, *in situ* enhanced bioremediation is effective at IR Site 40. However, during full-scale implementation of this technology, refinements and enhancements may be required to accelerate the cleanup process. These additions will be evaluated during the design phase of the project.

Remediation activities at IR Site 40 may overlap with project activities at IR Site 70. Similar to IR Site 40, IR Site 70 will use injection and monitoring wells to implement an *in situ* treatment technology as part of the remediation system. Therefore, once the system has been constructed, the continued impacts to air, noise, and mineral resources are minimal If construction activities for IR Sites 40 and 70 coincide, the mobilization activities for the drill rig and drilling crew could be combined. This would avoid cumulative impacts on traffic, public services, utilities, and energy. In addition, operating and maintaining the two remediation systems concurrently would decrease the cumulative impacts on traffic and public services as site visits could be conducted by the same person(s) and be scheduled back-to-back.

Describe to what extent project activities would:

a. Increase the need for developing new technologies, especially for managing any hazardous or non-hazardous wastes that the project generates.

The use of innovative technologies for site remediation requires bench- and pilot-scale testing to determine their effectiveness at a site. Based on the results of the Pilot-Test, *in situ* enhanced bioremediation is effective at IR Site 40. However, during full-scale implementation of this technology, refinements and enhancements may be required to accelerate the cleanup process. These additions will be evaluated during the design phase of the project. Also refer to the Environmental Setting

Air monitoring for methane gas and hydrogen sulfide gas continues in and around the test area as part of the Phase II bioaugmentation pilot test A report will be prepared upon completion of the phase II pilot test and will address the results of air monitoring at Site 40.

Institutional controls will remain in place until groundwater remediation is complete. Groundwater remediation will be considered complete when the concentration of chemicals of concern (COCs) in all monitoring wells meets the cleanup goals for one year. The project is anticipated to commence the end of 2005.

b. Increase the need for developing new technologies for any other aspects of the projects.

Refer to the response in item a. and the Environmental Setting.

c. Leads to a larger project or leads to a series of projects, or is a step to additional projects. (Examples of DTSC projects include Interim Corrective Measures and Removal Actions that are not final remedies for a site or facility.)

Remediation activities at IR Site 40 may overlap with project activities at IR Site 70. Similar to IR Site 40, IR Site 70 will use injection and monitoring wells to implement an *in situ* treatment technology as part of the remediation system. Therefore, once the system has been constructed, the continued impacts to air, noise, and mineral resources are minimal. If construction activities for IR Sites 40 and 70 coincide, the mobilization activities for the drill rig and drilling crew could be combined. This would avoid cumulative impacts on traffic, public services, utilities, and energy. In addition, operating and maintaining the two remediation systems concurrently would decrease the cumulative impacts on traffic and public services as site visits could be conducted by the same person(s) and be scheduled back-to-back. Please refer to the response to item b above. IR Site 70 may also implement in situ enhanced bioremediation technology.

d. Alters the location, distribution, density or growth rate of the human population of an area.

The project will not affect the location, density, or growth rate of the human population in the area

e. Affect existing housing, public services, public infrastructure, or creates demands for additional housing.

The aforementioned items will not be affected by the project activities.

f. Be cumulatively considerable on the environments with cumulative adverse effects on air, water, habitats, natural resources, etc.

Because the project is confined and does not affect surrounding areas, there will be no impacts on air, natural resources or habitats.

References: 1, 2, 3, and 16

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

18. Mandatory Findings of Significance

Project activities likely to create an impact:

- Installation of monitoring and injection wells

Description of Environmental Setting:

IR Site 40 is located within an industrial portion of NAVWPNSTA Seal Beach. Noise and health and safety hazards associated with installation of wells are low for construction related activities. Duration of installation activities is assumed to be approximately 9 days and the drill rig and development rig will remain on-site until activities are completed. This will decrease the amount of traffic to and from the site.

Analysis of Potential Impacts.

The purpose of the proposed project is to remediate VOC-contaminated groundwater at IR Site 40. The selected technology, *in situ* bioremediation, relies on the injection of an environmentally friendly substrate into the plume to degrade PCE and TCE to harmless byproduct. These reactions occur subsurface which minimizes exposure to workers that could occur through typical pump and treat (*ex situ*) remediation systems. Human health risks posed by the technology are greatly decreased, and no waste water is generated that requires proper disposal.

Installation of wells is a routine procedure. IR Site 40 is located within an industrial portion of the base and additional wells will not impact the aesthetic and recreational value of the area.

Describe to what extent project activities would:

a. Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

The Base Master Plan Institutional Controls, such as land use restrictions, will be applied to the project site. These controls will protect the integrity of the groundwater injection and monitoring wells and associated equipment and prevent the use of contaminated groundwater until cleanup goals are achieved. The project will not degrade the quality of the environment or affect the wildlife of the area or eliminate periods of California History or pre-history.

b. Have impacts that are individually limited but cumulatively considerable. As used in the subsection, "cumulatively considerable".

["Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects]

Based on the analysis presented in the biological, cultural, hazardous materials, air, and hydrology sections of this Special Initial Study, this project will not have a significant adverse cumulative effect on the environment.

c. Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

The project will not have an adverse effect on human beings directly or indirectly. As stated in item a. above, institutional controls will prevent the use of water that has not yet been suitably treated, and the site area will be contained to prevent unauthorized access. The Base Master Plan Institutional Controls, such as land use restrictions, will be applied to the project site. When the project goal is accomplished, it will benefit human beings by removing contaminants from the groundwater, rendering it safe

References: 1, 3, 5

Findings of Significance:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

V. DETERMINATION OF DE MINIMIS IMPACT FINDING

On the basis of this Special Initial Study:

☒ I find that there is no evidence before the Department of Toxic Substances Control that the proposed project will have a potential for an adverse effect on wildlife resources or the habitat upon which the wildlife depend. A Negative Declaration with a De Minimis Impact Finding will be prepared.

VI. DETERMINATION OF APPROPRIATE ENVIRONMENTAL DOCUMENT

On the basis of this Special Initial Study:

☒ I find that the proposed project COULD NOT have a significant effect on the environment. A NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project COULD HAVE a significant effect on the environment, mitigation measures have been added to the project which would reduce these effects to less than significant levels. A NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project COULD HAVE a significant effect on the environment. An ENVIRONMENTAL IMPACT REPORT will be prepared.

DTSC Project Manager Signature		8/21/03 Date
Katherine Lieber DTSC Project Manager Name	Project Manager, Office of Military Failcities DTSC Project Manager Title	(714) 484-5446 Phone #
DTSC Branch/Unit Chief Signature		8/21/03 Date
John E. Scandura DTSC Branch/Unit Chief Name	Chief, Southern California Branch, OMF DTSC Branch/Unit Chief Title	(714) 484-5440 Phone #

ATTACHMENT A

SPECIAL INITIAL STUDY REFERENCE LIST

For

NAVWPNSTA SEAL BEACH

1. SWDIV. 2003. Proposed Plan/Draft Remedial Action Plan, Installation Restoration Site 40, NAVWPNSTA Seal Beach. October.
2. Bechtel Environmental, Inc. (BEI). 2003a. Final Technical Memorandum on Pilot Test for In Situ Enhanced Bioremediation at IR Site 40, Naval Weapons Station Seal Beach, Seal Beach, California. February
3. Bechtel National, Inc. (BNI). 2002. Final Groundwater Feasibility Study Report, Installation Restoration Sites 40 and 70, Naval Weapons Station, Seal Beach, Seal Beach, California, Volumes 1 and 2. Revision 1 June.
4. CH2M Hill. 2000. Draft Focused Site Inspection Phase II Report, Naval Weapons Station, Seal Beach, California. Volumes 1 and 2. 18 December.
5. BNI. 1999. Final Extended Removal Site Evaluation Report, Installation Restoration Sites 40 and 70, Naval Weapons Station, Seal Beach, Seal Beach, California. October.
6. BEI 2002. Final Annual Groundwater Monitoring Report, Installation Restoration Sites 40 and 70, Naval Weapons Station, Seal Beach, California. September
7. Chambers Group, Inc. 1995. Archaeological Resources Protection Plan for Installation Restoration Sites 5, 8, 12, 16, 40, 44, and 46 at Naval Weapons Station, Seal Beach, Orange County, California. March.
8. Cover letter for the "Archaeological Resources Protection Plan for Installation Restoration Sites 5, 8, 12, 16, 21, 40, 44, and 46" to Ms. Cherilyn Widell, State Historic Preservation Officer, from Mr. D. Baillie Environmental Director, NAVWPNSTA Seal Beach, dated 28 April 1995.
9. Letter to D. Baille, Environmental Director, NAVWPNSTA Seal Beach, from Ms. Cherilyn Widell, State Historic Preservation Officer, dated 30 May 1995, subject: "Containment Sampling Sites 5, 8, 12, 16, 21, 40, 44, and 46, Seal Beach NWS."
10. Letter to D. Baille, Environmental Director, NAVWPNSTA Seal Beach, from the City of Seal Beach, dated 8 June 1995, subject: "Archaeological Resources Protection Plan for Installation Restoration Sites 5, 8, 12, 16, 40, 44, and 46 at Naval Weapons Station, Seal Beach, Orange County, California."
11. American Conference of Governmental Industrial Hygienists. 2002. Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs).
12. California Regional Water Quality Control Board. 1995. Water Quality Control Plan, Santa Ana River Basin, Santa Ana Region.
13. California Code of Regulations (CCR), Title 8
14. Occupational Safety and Health Administration (OSHA) Regulations, 29 CFR

15. U.S. Environmental Protection Agency (USEPA), Office of Noise Abatement and Control. 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety. 550/9-74-004. March.

16. BEI. 2003b. Final Work Plan Addendum – Pilot-Test Program, IR Site 40, NAVWPNSTA Seal Beach. March 11.

17 Department of Fish and Game, Rarefind Report, June 2, 2003.

18 *Department of Toxic Substances Control*: http://www.dtsc.ca.gov (Calsites list of contaminated sites)

19. South Coast Air Quality Management District: http://www.qamd.gov.

ATTACHMENT B

SPECIAL INITIAL STUDY FIGURES LIST

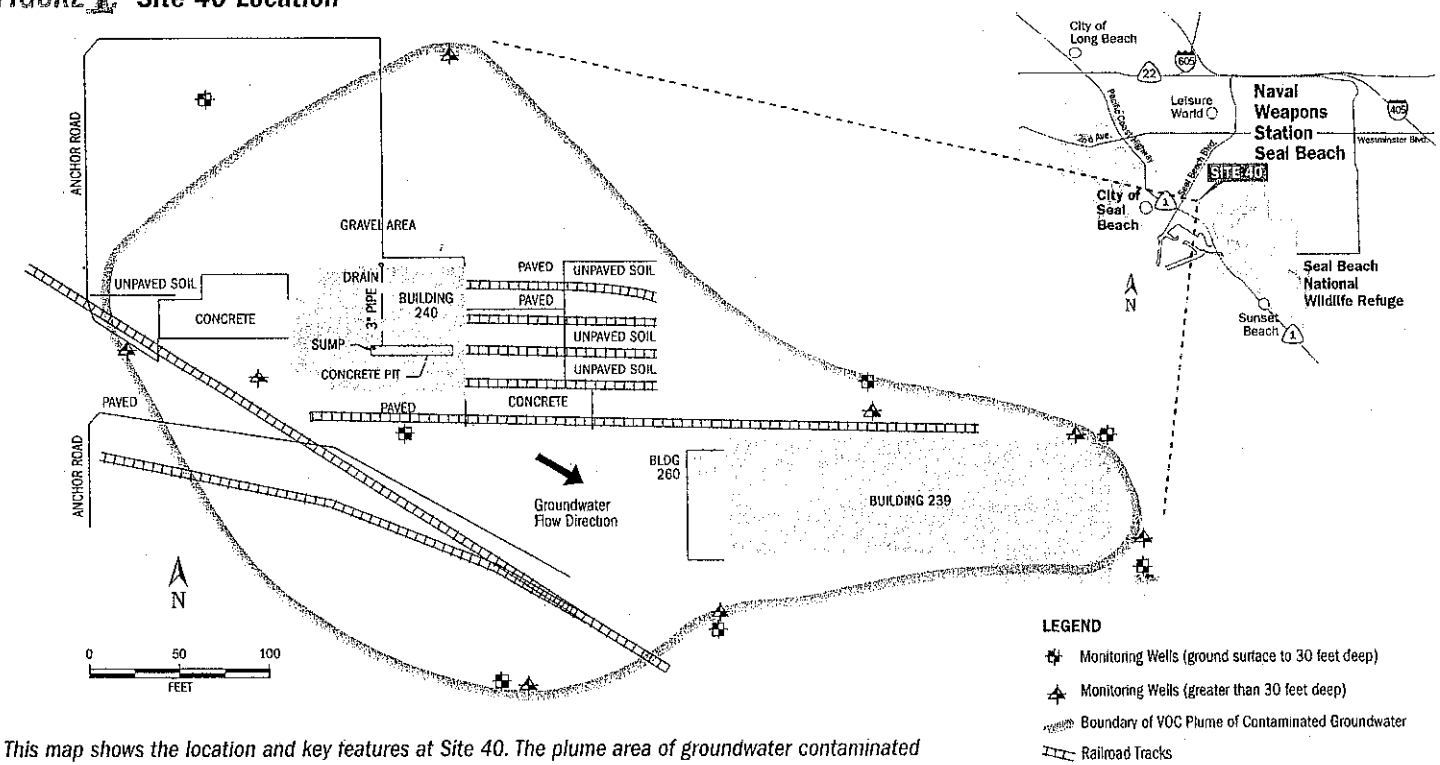
For

NAVWPNSTA SEAL BEACH

Figure 1, Site 40 Location

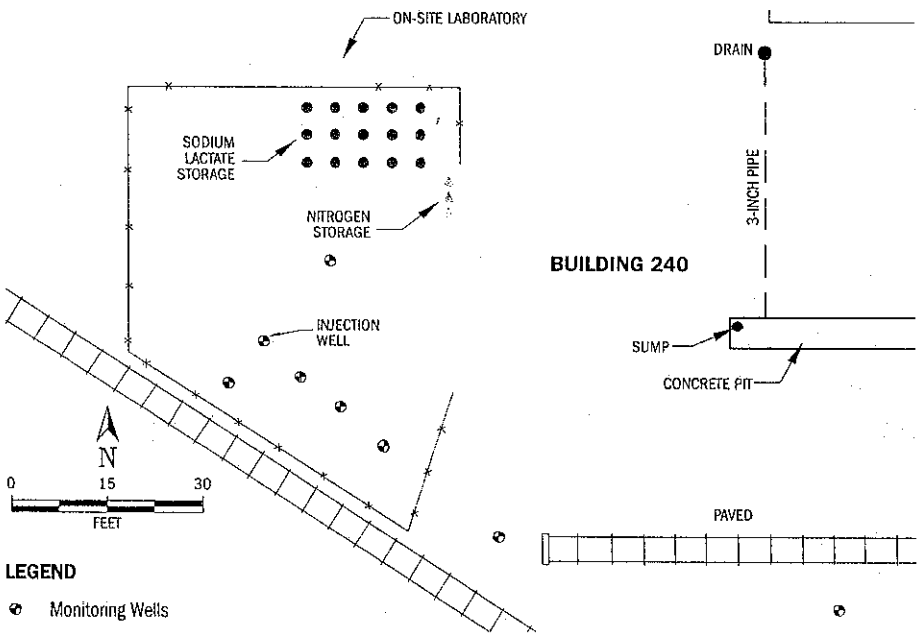
Figure 2, Pilot Test Layout

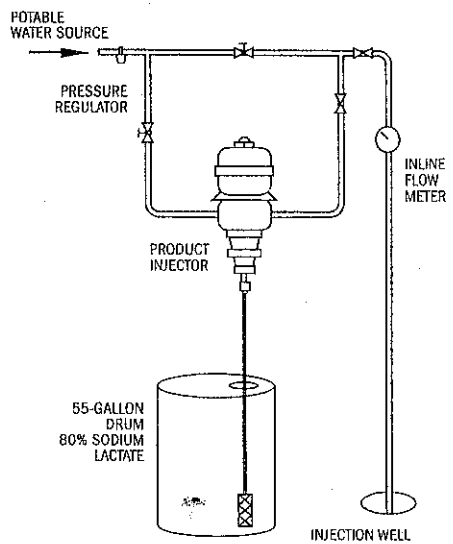
FIGURE 1: Site 40 Location



This map shows the location and key features at Site 40. The plume area of groundwater contaminated with VOCs and monitoring wells used for determining plume boundaries are presented.

FIGURE 2: Pilot Test Layout





Tap water from the hose valve at Building 240 was mixed with sodium lactate solution, then pumped into the injection well to the VOC plume beneath the site. The injector system was powered solely by the water pressure from the tap.